

The Architect and the Local Food System

The Architect and the Local Food System
A Proposal for North East Central Durham

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Always the beautiful answer who asks a more beautiful
question.

-e. e. cummings

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Section A: Abstract

Architectural patterns of thought are especially well suited for intervention in complex systems. Characterized by critical spatial analysis, interdisciplinary engagement, and open-ended problem solving, architectural thinking provides the opportunity to read and react to the economic, social, cultural, and physical aspects of real-world systems in meaningful, sustainable ways.

From a deliberately proactive stance, my project poses the following question: How can architectural and urban design strategies strengthen community food system initiatives and interventions? My proposition is that an architect's role in helping build healthy community food systems should not be limited to client-initiated service design, and that research and active speculation into local food communities may reveal productive territory for place-based and place-supportive design.

Located in chronically poor North East Central Durham, my project applies the intelligence found in local food systems as a design tool for revitalization at two scales. At the urban scale I propose a multi-phased plan that focuses food system investment in a node-and-corridor scheme. At a building scale, I have chosen a site and developed a program to provide a catalytic intervention in the local food system of the neighborhood.



Section B: Statement, Proposition, and Research Question

Architectural patterns of thought are especially well suited in the conception of appropriate intervention in complex systems. Characterized by critical analysis, interdisciplinary engagement, and open-ended problem solving, these applied modes of thinking provide the opportunity to link the economic, social, cultural, and physical aspects of real-world systems in meaningful, sustainable ways. Through deep understandings of systems' connections and components the architect can develop a role, and a voice, in current and future debate over the safety and security of one of the most basic elements of human life - our food.

Food provides a conceptual node that, depending on the context of discussion, gathers numerous issues across many scales into a variety of identifiable, inter-related systems. Global, local, community, organic - these are ways to imagine systems that include all aspects of food, from growing and distribution to processing, selling, and consuming. Stemming from re-discovered popular belief in the inherent health of local resource and knowledge systems, the discourse on community food systems represents the effort to re-locate food production and distribution from a global, place-less food system to a local, visible, tangible one in order to create a healthy food system that is community based.

My proposition is that an architect's role in helping build healthy community food systems should not be limited to client-initiated service design. In a traditional service-based design method, questions about program, siting, and infrastructural implications (a set of questions that impact sustainability, urban design, and community health) are asked and answered before an architect's services are engaged. The level of contribution to a community's long-term health will be determined by: the client, their brief, and whatever set of codes and regulations govern the project. The architectural design per se of farm, market, or outreach buildings typically won't engage critical areas of community health any further than a client-produced program brief specifies. The typical client-to-architect relationship does not allow for major program changes made by the architect. Architectural areas of expertise, however, extend much further than this service mechanism takes advantage of.

Architectural thinking and operation ought to extend from the building to include the system; ought to extend to the programming of system interventions; ought to extend to and internalize socio-cultural implications, ecological responsibility, and community-based solutions. By moving upstream in the design process to a position of collaborative partner in food system conversations, architects will discover meaningful applications of their particular methods of thinking and problem solving.

In order to demonstrate the feasibility of this position, I propose the following primary research question: How can architectural and urban

design strategies strengthen community food system initiatives and interventions?

In the pursuit of this primary question, subsidiary questions arise that must be addressed in an effort to clarify and make simple the smaller components of the question.

What architectural design skills come to bear in the analysis of spatial and temporal systems? What skills lead to the effective programming of design interventions into a complex system?

How will a community food system, itself a relative concept, be framed for the purposes of this study? How will the strength and health of a food system be measured? What comprises an initiative or intervention into a community food system? And most importantly, why should architects, as a profession, be concerned with the function and health of community food systems?

The significance of this research hinges on the understanding of the architect-to-food system relationship. One aspect of this relationship can be seen from a professional point of view. An architect, seeking out healthy and profitable market sectors, may identify food infrastructures and food systems as a growing area of practice. Food figures heavily in discussions of public health, social justice, national security, cultural identity, and even art and fashion. By realizing the interconnectedness of our society with food, it follows that some architects may decide that food systems and infrastructures represent a potential area for long-term profit. In the for-profit world, the architect-to-food system relationship offers potential for design firm stability.

On the other hand, this relationship can be understood from a community-based architect point-of-view. This is the practitioner that seeks projects directly related to the public good. From this viewpoint, the community food system offers unparalleled access to pressing ecological, social, and economic issues. By developing expertise in food system dynamics and interventions, an architect opens up entry points into top-down planning and policy work, as well as credibility in the grassroots, bottom-up efforts that exist across any food system. Opportunities arise for pro bono and not-for-profit design, academic research, and public-private partnerships that translate the complex relationships in a food system into drivers of scholarship, activism, and public projects. This type of work will benefit from deep understandings of the play between top-down and bottom-up development, in that broad policy initiatives can be implemented that draw upon local wisdom and local knowledge.

Establishing balance between top-down and bottom-up strategies will not only support intelligent interventions into a community, but also, especially in the context of an architectural research project, suggests certain attitudes about locality and regionalism. While my process-driven research semester will avoid relying on preconceptions about architectural style or theoretical formal positions, the potential associations that exist between my proposed work and architectural theories of regionalism, critical regionalism and vernacular formalism deserve explanation.

A local food movement implicitly draws intelligence and character from its regional context of climate, soils makeup, pattern of land use,

and cultural character. By its very nature the expression of a community food system will be of its place. Theories of architectural practice and form-making have also found place-based intelligences in the study of vernacular architecture, climate-responsive buildings, and in a larger way in the theories of critical regionalism, first introduced by Lewis Mumford as a means of moving away from what he framed as detrimental universalities of Modernism. A critical regionalist stance, in fact, relies upon balance between local and universal, between familiar and strange, and in some ways between top-down and bottom-up. Parallels are easily found between regionalist architectural practice and a community food system, in terms of place, local vs. universal sensibilities, and reactions to unsustainable hegemony (modernism in one case, corporate global food systems on the other).

While these parallels should not be ignored, neither do they align at meaningful ontological levels in terms of my current research plan. The connections I see between these two areas are more ideological than practical, and trying to relate infrastructural, agricultural, community, and urban systems with those of architectural form seem less fruitful than a study of each on its own merits. Exploration of critical regionalist or related tactics for generative form-making is not my goal in this research project. I am not planning on designing architectural forms that draw on any particular design idiom, critical regionalist or otherwise.





fig 1: CROPLAND IN THE TRIANGLE



fig 2: COMMUNITY GARDENS



fig 3: FARMERS' MARKETS



fig 4: SUPERMARKETS



fig 5: CONVENIENCE STORES



fig 6: SUPERCENTERS

Section C: Research Methodology

The investigation I've conducted around my primary research question has, by design, spanned both the Spring and Fall semesters of 2011. By design I have kept an open-ended position that has required me to treat each phase of my project as research, including conceptual design of architectural interventions. By allowing discovery and speculation, by allowing myself to not know at the outset what I would find, I hoped to produce the conditions for emergent results that would draw heavily on contextual analysis, imagination, and empathic listening skills.

My research method began with two coincident research goals; locate a neighborhood for design action, and develop a working understanding of local food systems.

Using GIS data along with Google Maps I was able to identify major food system elements of the Triangle, in North Carolina (Durham, Orange and Wake counties). The elements that I mapped included food outlets, such as grocery stores, farmers markets, and convenience stores, agricultural cropland, population centers, and distribution infrastructures (highways and rail). I also mapped poverty across the region and discovered USDA food deserts within the area. Using this compilation of data I began to look at Durham NC, and focused in on an area called North East Central Durham (NECD). I chose this area because of its clear need for a greater range of food resources, and also because of the availability of a number of recent documents about the needs of the neighborhood.

At the same time that my geographic analysis was proceeding, I researched the topic of local food systems. This research helped drive the geographic narrowing down, as I developed a more sophisticated sense of food system terms and dynamics. Additionally, the geographic narrowing down steered my neighborhood research, helping me locate important neighborhood references and documents.

The food system research included a literature review and of case and field studies. A selection of these case and field studies is included at the end of this book. The literature review will provide a conceptual framework in which to define the community food system, which itself is a contextually dependent, relative term. The case and field studies will help establish the character of the points to be mapped in the system, and their effects on and ties to one another, and can be subdivided into 1) design case studies, 2) precedents into research methods, and 3) field studies of local food system components. I view each of these areas as important, and significant enough to be listed separately.

Once my neighborhood had been identified, and as I was armed with a working knowledge of local food system features, I conducted a street-level documentation of the food system components in NECD. My data collection included all food outlets (grocery stores, convenience

stores, markets), any home gardens visible from the street, community gardens and urban farms. In addition, as a way to inventory potential land and building resources of the community, I located all multi-family housing, vacant parcels, and abandoned buildings. Also mapped was the R.O.W. of a high tension line.

This concluded the bulk of my site analysis research, and from this point I moved into a period of design research that carried most of the way through my final semester. As I moved into design, I generated a set of design intentions that guided both the generation of design solutions and my evaluation of each of them. (see illustration below)

I consider the generation of these intentions as the most important critical step in my project. This allowed me to treat each concept development as part of an iterative design, in which each site was evaluated on similar terms before moving on to the next site. It allowed me to treat my design as research from which I was able to learn through making and learn through critical evaluation. Because of this set of intentions a consistency of approach characterized each step of my design work, from the urban scale to the building scale.

These intentions included the incorporation of all parts of a whole food system, and a number of community-oriented design objectives, such as design for inclusion, equity, participation, diversity of scale, and allowance for choice in occupancy and activity.

Out of the collected data in NECD an urban plan took shape from a spatially linked map of a community food system, and within the scheme of the urban plan seven conceptual interventions were conceived as tests of applying local food design to individual sites. Each of these interventions was meant as research into the application of food system logic as a design tool.

From these seven conceptual interventions, I spent additional time designing schemes for three of the sites. With the help of my committee, I selected one site, the Angier-Driver Food Hub for further development through the rest of the se

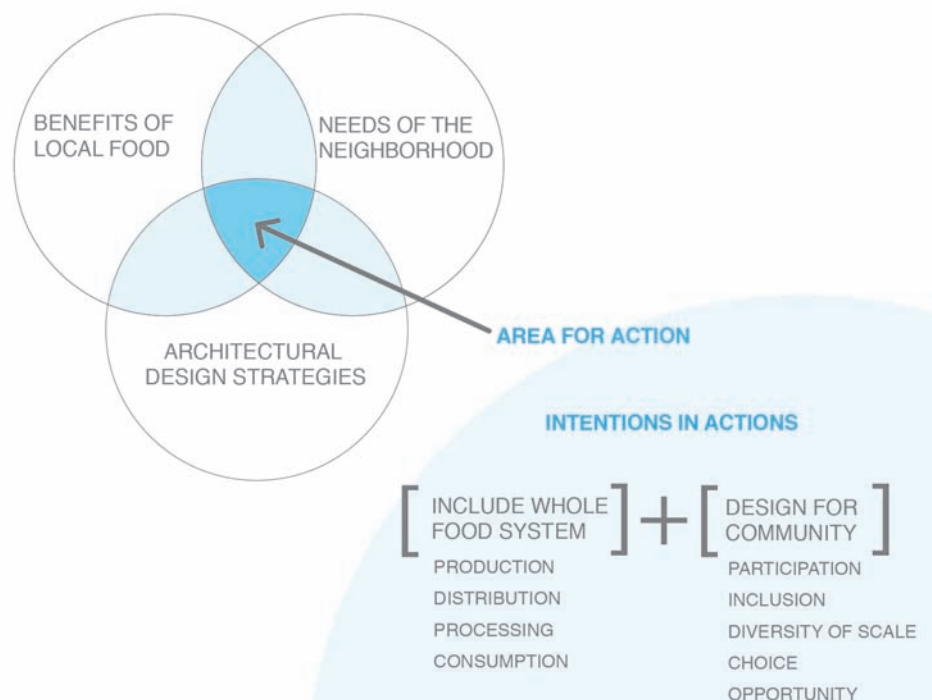


fig 7: DESIGN ACTION AND INTENTION

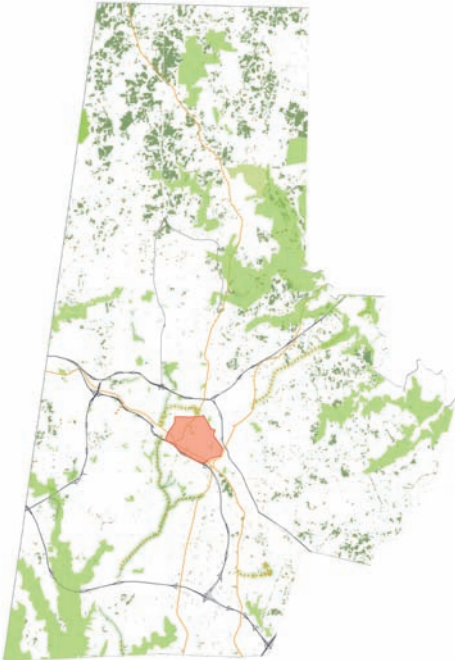


fig 8: DURHAM COUNTY CROPLAND AND CONSERVATION SPACE. NECD SHOWN IN ORANGE

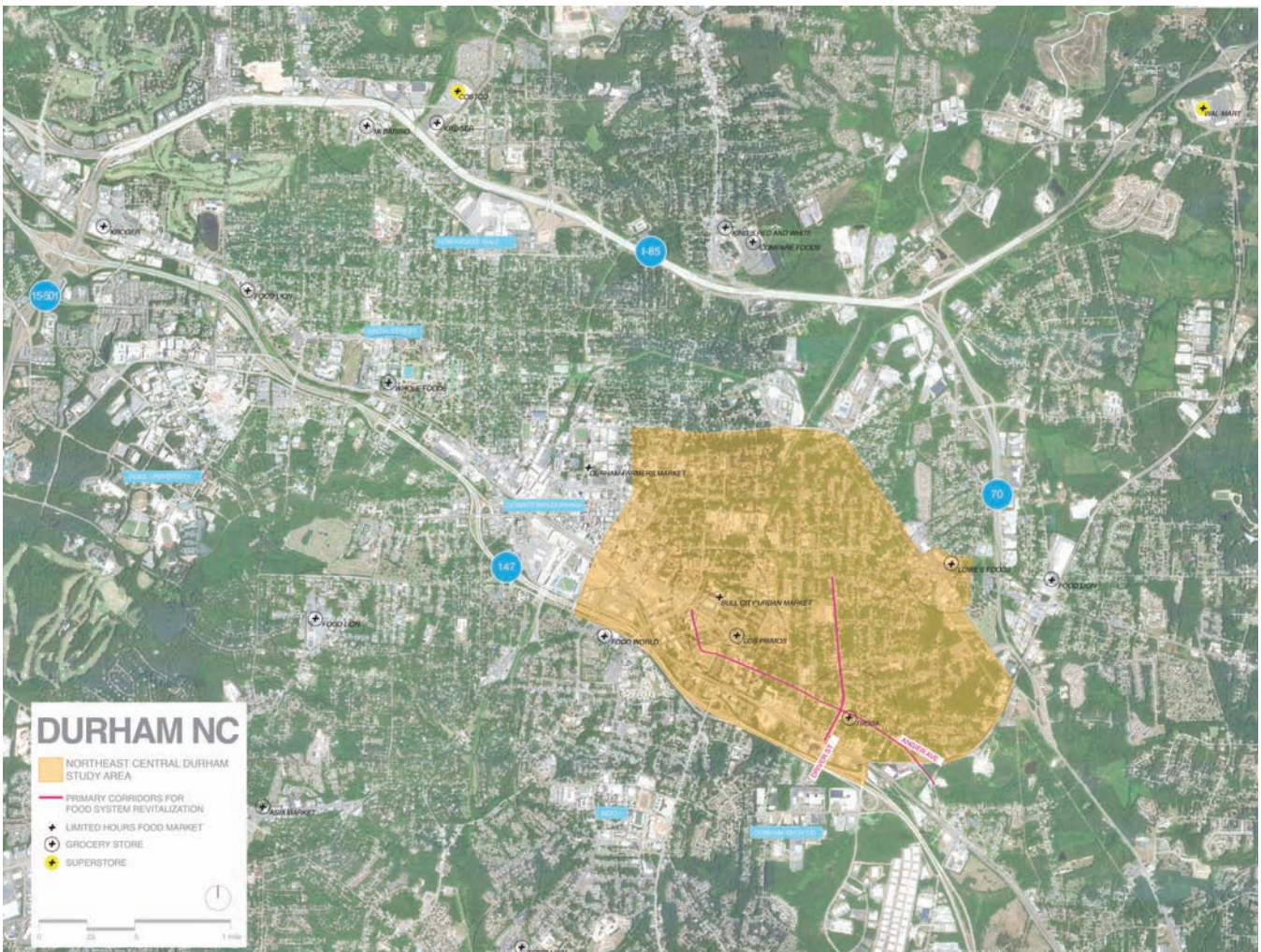


fig 9: THE STUDY AREA OF NORTH EAST CENTRAL DURHAM

Section D: North East Central Durham Analysis

NECD was once a “vibrant community with a bustling neighborhood business district along Angier Avenue.”

“East-of-downtown Durham has been a diamond in the rough for many years, at best unloved and at worst abused by a lack of economic investment.” –endangereddurham.blogspot.com

“NECD is one of five distressed Durham communities severed by an urban renewal highway project in the 1970’s . . . (this neighborhood) is now an island floating in a sea of poverty, inequitable development, and substandard housing conditions.”

The area known as North East Central Durham (NECD) (see map previous page) is actually comprised of six distinct neighborhoods, gathered together for municipal planning purposes. Old Five Points, Cleveland-Holloway, Eastway-Albright, East Durham, Hoover Road, and Wellons Village are the separate, smaller neighborhoods of NECD. While there are many differences among these places, they are tied together by more than geography. They all share in poverty, deprivation, and abandonment, making them together an opportunity for revitalization.

Many of the issues in a poor neighborhood can be linked to food, and NECD is no exception. Food access problems and food insecurity are common problems. Public health issues in poor neighborhoods such as this one include diabetes and obesity. While much research has been done on poverty and food issues in general, my focus on this particular neighborhood as a place in need of revitalization required specific evidence.

I built my case for NECD revitalization in two ways. First was my street-level data collection, which mapped markers for poverty such as vacant lots and abandoned buildings. I found many abandoned buildings, both commercial and residential, in many states of disrepair. Some houses were carefully boarded up to prevent theft of construction materials, and others were decayed to the point of falling in on themselves. Vacant lots made up a large part of the story of this survey. Of the entire NECD area, 126 acres, or 7%, of the total area is vacant lot. Much of this vacant space lies along Angier Ave, and much of this vacant space is the result of demolition in recent years.

The second source of justification for design intervention in NECD was a collection of documents related directly and indirectly to the neighborhood. These included a UNC-CH planning study, the published results of a NECD community initiative, Durham’s Farmland Protection Plan, and the Durham Comprehensive Plan became the sources used to build a



fig 1: NEIGHBORHOODS OF NECD



fig 2: ABANDONED HOUSE, NECD



matrix of needs in the neighborhood. By using these primary sources to generate a list of needs, action items and recommendations for revitalization, I found justification for design action aimed at revitalization. This set of data allowed me to move quickly into design, instead of having to rely on my own original data collection for direction.

As shown by the series of maps included following this section, NECD is close to downtown Durham, and is made up primarily of residential neighborhoods. Punctuating the residential fabric are schools and institutions, as well as clusters of small commercial buildings. Along the south edge of NECD runs the Durham Freeway, 147, that was part of a 1970's urban renewal plan. Also at the southern edge is a railway corridor that wraps the eastern border of the neighborhood as well.

Civic resources such as parks and schools are evenly distributed through the area, except for a curious lack of sites along and around the Angier Ave corridor. Also evenly distributed are the abandoned buildings that I mapped. Vacant lots, as were mentioned earlier, are seen to cluster along Angier Ave. Of interest is the proposed light rail station planned to be built just east of Alston Ave, on Pettigrew St. This station has the potential to dramatically shift property values in the vicinity and alter what are currently seen as the highest and best uses nearby.

My research into the neighborhood also included the website Endangered Durham. This site, written primarily by Gary Kueber, provided a great deal of historic information about different areas of the neighborhood, in particular pointing out the significance of the Angier-Driver commercial district.

This intersection is the site of important recent efforts in revitalization. Joe Bushfan has opened Joe's Diner on the corner of Angier and South Driver, and has helped to locate TROSA Grocery here as well. These two storefronts stand out in the neighborhood as evidence of renewed interest in the health and viability of the local economy. TROSA Grocery, a branch of TROSA Durham, is a workplace and training site for a residential addiction treatment program. The store is staffed by residents, and is subsidized by the non-profit TROSA.

As I concluded my NECD research, it became apparent that if local food system intervention would include making use of vacant lots, Angier Ave must be considered. Also, in studying the various food outlets in the neighborhood, it was clear that TROSA grocery was not heavily patronized by local residents, even though it was geographically quite convenient. Food system intervention and revitalization along Angier Ave, through the South Driver St intersection, could have a mutually beneficial effect on TROSA's business. As I began to build an urban plan, various details of the neighborhood emerged from my research to help guide my decisions. As I move into design discussion, I will outline relevant elements.



fig 3: JOE'S DINER AT THE CORNER OF ANGIER AVE AND S DRIVER ST



fig 4: NECD FIGURE -GROUND

fig 5: NECD CIVIC RESOURCES





fig 6: NECD FOOD OUTLETS

fig 7: PROPOSED LIGHT RAIL SYSTEM





fig 8: NECD ABANDONED BUILDINGS

fig 9: NECD VACANT LOTS





fig 10: NECD GRAVEL ROAD



fig 11: NECD VACANT LOT



fig 12: SEEDS GARDENS



fig 13: NECD COMMUNITY GARDEN



fig 14: ASBURY TEMPLE



fig 15: NECD RESTAURANT

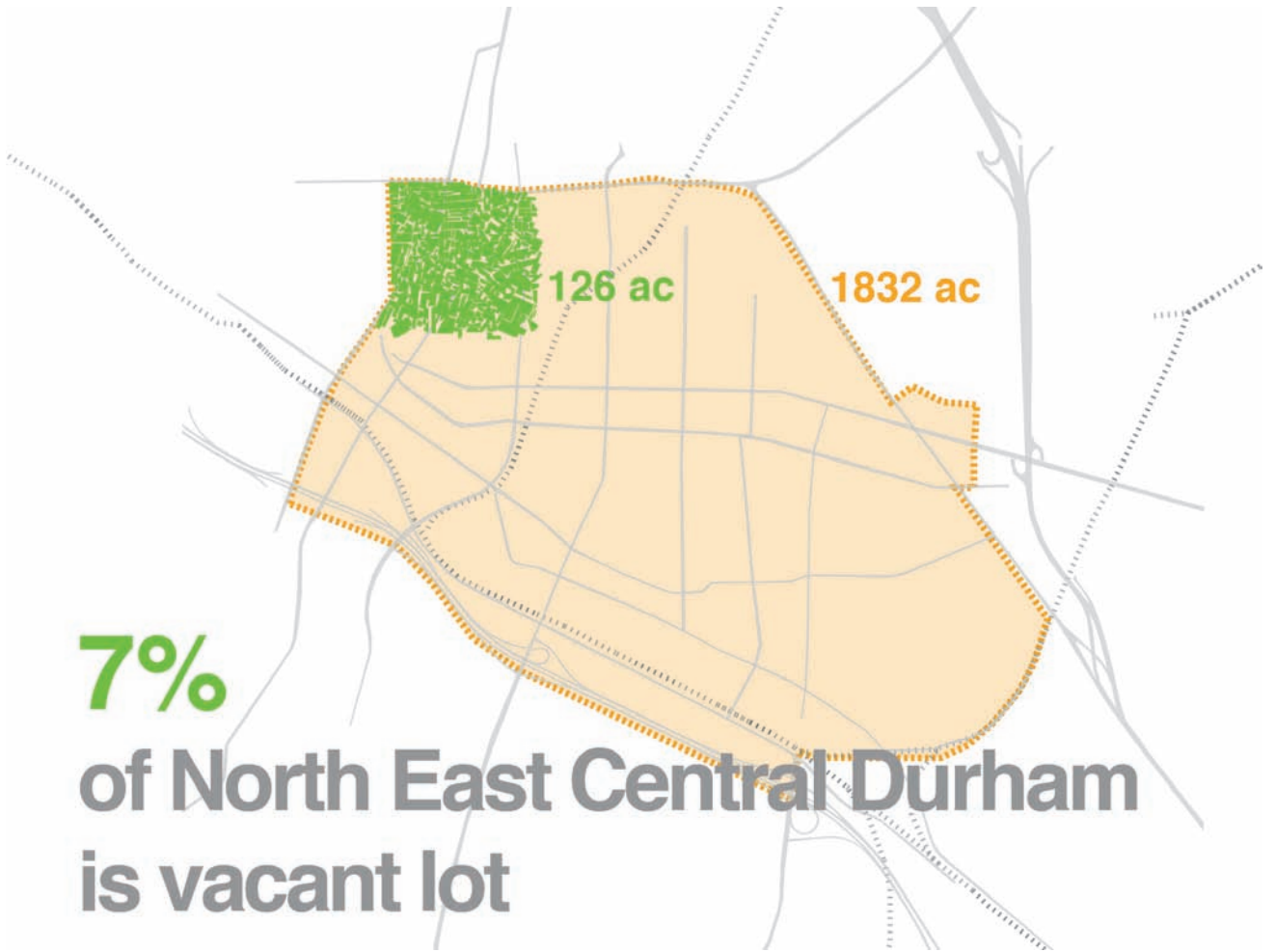


fig 16: VACANT TERRITORY IN NECD



fig 17: NECD VACANT LOT



fig 18: NECD VACANT LOT



Section E: Local Food Systems: An Overview

“A renewed interest in local production has been spurred by environmental and health concerns, gourmets interested in preserving local varieties, and the remaining local farms.” (Newman p.34)

Studies have found the primary reasons for buying local to be the freshness of food, the ability to support the local economy, and to know the source of the product. (Martinez p.29)

“Explosive growth in farmers’ markets and community supported agriculture is the clearest indication of growing interest in local food.” (Halweil p.8)

Discussions of food gather numerous issues, across many scales, into a variety of identifiable, inter-related systems. Global, local, community, organic - these are ways to imagine systems that include all aspects of food, from growing and distribution to processing, selling, and consuming. Discussions of local food represent an effort in focusing and re-locating ideas of food production and distribution from a global, place-less food system to a local, visible, tangible one in order to create a healthy food system that is community based. Discussions of local food necessarily imply the presence of the global system that it exists alongside or actively subverts. In the context of this global-local dichotomy, those involved with local food movements recognize an immediate crisis: “The modern globalizing food system contributes to . . . thinning out of place regarding homogenization and increased blurring with ‘every other place in global space.’” (Feagan p.38)



fig 1: FOOD SYSTEM DIAGRAM

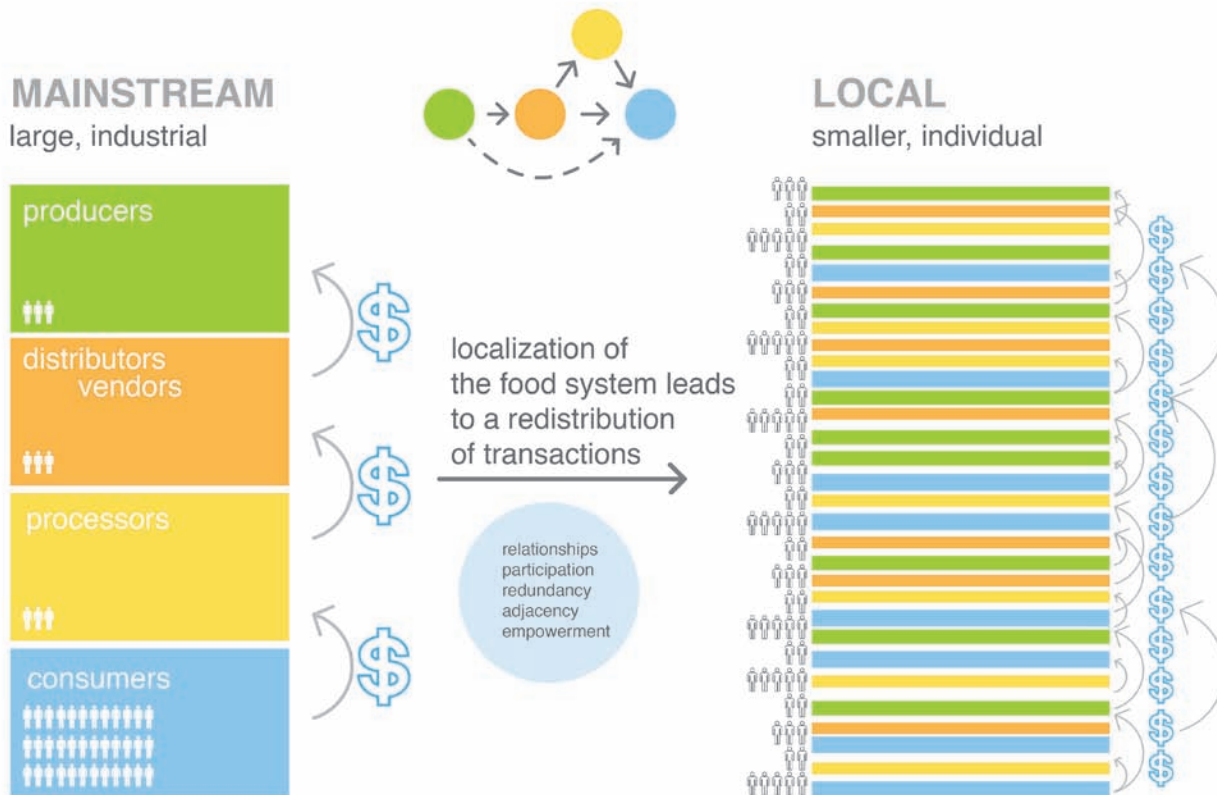


fig 2: LOCALIZING THE FOOD SYSTEM

In my final project work, design choices will be prioritized that favor conditions of local food over global or mainstream food, and that favor rich, interconnected local food systems. (see diagram above) By implementing local food as a primary driver of qualitative decisions, I expect an implicit incorporation of the many community benefits observed in local food systems. Also, by choosing a context-dependent concept as a design tool, I intend to maintain a clear link to the importance of place and I hope to thicken that place with local experience and intelligence, instead of allowing it to be thinned out by globalization.

Before advancing to the site and project design, however, it is essential that I fully examine the case for local food, and build justification for its use as a design tool.

In the following discussion I will explain my findings on the context of the local food movement and common terms used within it, discuss local food markets and suppliers, present advantages and benefits of a local food system, and explore the hyper-local food production found in urban farms and gardens. One of my goals is to demonstrate the imperative quality of the local food movement and its potential to preserve or recover a place's character and culture. A crucial understanding of localism reveals the attitude of 'Acting Now!', and that "Localism provides a defensive position against the disempowering and homogenizing effects of globalization." (Feagan p.31) However, it is just as much my goal to show that local food systems can also be seen as holistic, empowering, positive statements about community and interconnectedness.

A local food system is a difficult thing to define. Local food itself does not have a generally accepted definition. Local can be seen as a

“geographical concept related to the distance between food producers and consumers.” (Martinez) The U.S. Congress, as part of the 2008 Farm Act, defined local food as being sold within 400 miles of its origin, or within the same state. (Martinez p.3) Some supermarket chains allow a multi-state area to be considered local, while many grower-only farmers’ markets define local as within 100 miles, or 70 miles (Durham Farmers’ Market) or 50 miles (Carrboro Farmers’ Market). Alternatively, local food could be seen as a way that food, community, and place are interwoven in a complex way across daily experience and community memory. (Feagan p.38)

In the same way that local food can be envisioned as both geographically and culturally defined, so too can a local foodshed, that “sphere of land, people, and businesses that provide a community or region with its food.” (Halweil p.14) For example, the San Francisco group Roots of Change has proposed a 100-mile foodshed for San Francisco that would link growers, restaurants, retailers, and consumers in a sustainable network to feed the City of San Francisco. (Shigley p.29) This geographically defined area is simple to understand, has basis in actual productive lands within the radius, and would be easy to adhere to.

Looking at foodsheds in a culturally contextual way, however, reveals deeper understandings: “Foodsheds embed the system in a moral economy attached to a particular community and place, just as watersheds reattach water systems to a natural ecology.” (Feagan p.26) The way we produce and eat food are part of a place’s culture, ecology, landform, social patterns, and history, and these factors all affect a community’s definition of local.

Returning to the idea of the local food system, we find that the term ‘local’ here is itself a contextual term, defined in part by the particularities of place. Breaking the phrase down further, we find another variegated set of ideas in the concept of system. The system referred to here includes the interconnected web of actors and agents first referenced above in San Francisco’s foodshed: Growers, retailers, distributors, restaurants and consumers. Additionally, a food system includes policy-makers and policy, extension agents or other knowledge sources, and the infrastructures of distribution, processing, and storage. By locating elements of this system in a local space, the system becomes localized, with shorter geographical distance between nodes, and fewer nodes between grower and consumer.

This shortening of the food system can be seen, as I’ve said, as a way to counter globalization, and to counter “the invisibility of the provenance of the food and the anonymity of actors,” that is found there. (Feagan)

In the event that the local food movement continues to gain traction, it will increasingly bump against the globalized system. In order to more effectively counter the established global food system, local farmers will be required “to shift from their current roles as mass marketers of generic commodities to a more entrepreneurial approach that is responsive to local consumer demands.” (Halweil p.8)

A healthy local food system has a foundation of crop diversity



fig 3: FARM AND FOOD PRODUCTION



fig 4: AVERAGE FOOD MILES



fig 5: TIME AND NUTRITION LOSS

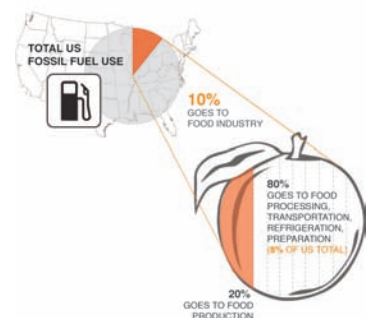


fig 6: ENERGY USE IN FOOD SYSTEM



(Halweil p.29) and a diversity of outlets through which the produce reaches the consumer. The issue of crop diversity is important in order to provide a range of foods and nutrients for a population, in order to establish economic diversity, and to encourage ecological stability by avoiding the risks of monocultures. (Halweil p.29) The issue of outlet diversity is important in order to subvert the dominant economic model of globalized food, and to respond more effectively to local demand. The farmer as entrepreneur may build marketing co-ops, link to large institutions to insure stable demand, (Halweil p.8) or create community supported agriculture (CSA's).

Along with farmers' markets, farmstands, and pick-your-own operations, CSA's are a way for produce to be delivered direct-to-consumer. Direct-to-consumer suppliers represent a significantly shorter food chain than is found in mainstream food systems. The particular advantages of this category of supplier include social interaction between grower and consumer, knowledge of food source, and knowledge of how dollars spent affect the local economy.

In contrast to the direct-to-consumer supplier types, direct-to-retail/foodservice suppliers represent a larger share of the local food market (\$5 billion in 2007 versus \$1.2 billion (Martinez p.10)) than direct-to-consumer, and are made up of different types of farms, typically. These suppliers serve institutions and organizations such as restaurants, hospitals, universities, and schools. Farm-to-school programs in particular have seen rapid growth in recent years, with 1000 U.S. programs in 2005, and 2051 programs by 2009. (Martinez p.14)

Alternatively, community gardens afford the opportunity for consumers to grow their own food. This food approach is extremely local, with food grown and consumed in place. A number of benefits have been found to be associated with community gardens. "Current and past research about community gardens illustrate that gardens have the potential to yield fresh food . . . bring 'nature' to urban areas . . . bridge ethnically and age diverse communities . . . increase physical activity . . . build skills and knowledge of everyday life . . . and build community." (Teig)

From these different types of local food suppliers and the benefits that they provide, my research backs out to the system level to investigate the benefits found in local food systems, which are generally well accepted.

Local or regional economic development, improved health and nutrition, higher food security, and environmental benefits such as lower greenhouse gas emissions and lower energy use as a consequence of fewer food miles are all viewed as benefits of local food. (Martinez p.40) Other benefits include increased food safety through knowing the source of the product, better taste and fresher food, less packaging and waste, and increased frequency of social interactions (Halweil p.10, Newman p.35, Martinez p.29)

I will spend time exploring the benefits that local food systems bring to local economies, health and nutrition, food security, and environmental and energy costs. These four areas are well researched and, except for the issue of energy savings, I have found little contradictions

among researchers. Where energy is concerned, however, I will explain the current state of knowledge about transport, food miles, and efficiency as it relates to mainstream and local food systems.

To begin simply, local economies benefit as food systems localize. Shortened food system chains work generally to keep capital in local business and reduce middleman costs, and they “alter positively the economic . . . viability of regions.” (Feagan) Local food markets are capable of driving an increase in consumer spending at other businesses in the community, and local labor markets can also see positive growth where food systems have strong local presence. (Martinez p.43) In particular, local food systems have the potential to spur the creation of new, local food businesses (Halweil p.35).

Local food is also fresher and more nutritious. “The farther food travels and the longer it takes *en route* to the customer, the more freshness declines and the more nutrients are lost.” (Hill p.2) By shortening the food system, better food is provided to the consumer. Two recent studies suggest that, “improved access to healthy foods is associated with healthier dietary choices.” (Martinez p.46) Although the relationships are not entirely clear, there are many claims that local food systems, through the delivery of fresher, nutrient-rich food, may provide health benefits. The two aspects of this effect are the healthy food itself (which can be provided by a local food system), and the access to the healthy food.

While shorter transport and storage times affect a food’s nutrient and health value, the issue of access to this healthy food is a separate, equally important factor in the health and nourishment of a community. Two terms are commonly used in describing a community’s level of access, or lack thereof. The first term, ‘Food Deserts’ refers to “poor neighborhoods often populated by ethnic or racial minorities that lack convenient access to affordable, healthy food.” (Shigley p.28) Food deserts are often urban, but research has begun to show that food deserts exist in rural areas as well. The USDA has created a website called “The Food Desert Locator,” designed to show all current food deserts in the United States. The criteria for inclusion as a food desert are low income and long distance from a grocery store or supermarket. (<http://ers.usda.gov/Data/FoodDesert/fooddesert.html>) Conditions within food desert communities are often at risk of hunger and malnutrition, prompting researchers to say of food deserts: “this is a public health disaster.” (Shigley p.28)

A second term used in food access discussions takes an inverse stance from food desert. ‘Food Security’ depends on access “to enough food for an active, healthy life, and is a necessary condition for a nourished and healthy population.” (Martinez p.47) Over the last 50 years or so, local agriculture has been in decline, leading to increased food insecurity, which in turn is seen as a threat to culture and personal independence. (Newman p.34) A population that is food secure will be characterized by access to enough calories and balanced nutrients for healthy growth, development, daily activity, citizenship, and productive lifestyles.

A food insecure population, on the other hand, is characterized by uncertainty, dwelling on the edge of hunger and malnutrition. As mentioned above, the food insecure population will be less able to sustain its



own culture and its own independence. Mobility within underserved areas also contributes to a landscape of poor access and food insecurity, leading from low self-determination to poor health outcomes. A recent study by the Community Food Security Coalition found that “a significant correlation exists between inadequate transportation and malnutrition.” (Rich p.1) Transportation, poverty, and access go hand in hand.

The role that local food systems may play in combating food insecurity is not as well documented as other benefit areas of local food systems, but Martinez’ work has found that there is an implicit assumption that “local foods improve access and reduce uncertainty.” (Martinez p.47). Confirming this qualified assumption is this statement: “In those poor communities that are not attractive to distant food companies, the best hope for good nutrition will continue to be local food.” (Halweil p.32) Which is to say that large grocery chains are not attracted to poor neighborhoods, helping to create a food desert condition. By locating food production directly in these food desert areas, food instability is fended off, and nutrition through fresh food is connected to the population most in need. If transportation, poverty, and access go hand in hand, local food may be seen as the disruption to this cycle. By reducing the demand for complete transportation options, locally produced food can directly address the access issue in underserved populations. Resurgence in local agriculture may help rebuild communities too poor to attract the large food companies.

The last attribute of local food systems that I’ll discuss specifically centers on energy use, food miles, and greenhouse gas emissions. The intuitive thinking would hold that produce grown and consumed locally would embody less energy and account for less greenhouse gas emissions, but the situation is not this clear cut. There has been much study of this issue, and there is no clear evidence that mainstream food systems have higher overall energy consumption than local food systems. (Martinez p.49) Studies show that “energy and emissions savings are dependent on the growing method and most importantly on the efficiency of the transport to market.” (Newman p.35) While the energy required to transport and store food *en route* is a high percentage of the total food sector energy use (only about 20% of food industry energy use goes towards production (Hill p.4)), the distance traveled by food is not directly associated with greater energy costs. Long-distance transport, such as ship or rail, are quite efficient when compared to current methods of small-scale, short-haul transport of local foods. (Newman p.35) It has been suggested that large inefficiencies exist in local food systems, and that improvements in this area could have significant impact on the overall energy picture.

As I shift my discussion from the benefits of local food systems generally to the concept of localized urban food systems, I find motivation in the words of David Orr, in *Ecological Literacy*: “The sheer concentration of large numbers of people will reduce environmental resilience, encroach on wildlife habitat, and impose significant ecological costs elsewhere. Urban concentrations must be justified on their contributions to intellectual, economic, and cultural life, not their sustainability.” These words

contain both moral imperative and veiled challenge. First, Orr states, if we must design cities we must design cities worthy of the natural systems we destroy in the process. But, I believe, if we are aware that sustainability in some way might exist within the city patterns we choose to create, we must follow that imperative as well, adding sustainability and environmental consciousness to the list of intellectual, economic, and cultural life. Localized urban food systems begin to embody hope of achieving each of these goals. Lenore Newman calls it “extreme local food,” in which some food needs come from inside the city itself. She sees this type of agriculture as a solution to the energy inefficiencies typically associated with local food systems, and as a way to provide local food where demand is greatest. (Newman p.36) Urban agriculture could certainly produce fresh food for city dwellers, but it could also create a range of food businesses, and help cities deal with ecological, social, and nutritional problems, ultimately becoming an economic development model that pays for itself. (Halweil p.35)

The specific benefits of urban farming and gardening would be to moderate air temperature, humidity, and wind speed, manage stormwater by detaining rainfall, providing aesthetic benefit, creating environmental interest, spurring a new generation of food activists, providing a social space, and growing produce for underserved neighborhoods, closing the effects of food deserts. (Newman p.36) Coupled with mobile fruit and vegetable stands, fresh produce in cities could reach an even broader community. “Mobile vendors offer opportunity to provide underserved communities with fresh produce in locations where brick and mortar stores are not feasible, and can be adept at providing culturally appropriate food items.” (Martinez p.10)

By locating food production and a range of market types within dense urban areas, designers could respond to an identified trend. “Studies have clearly identified the demand for local food is greatest in large urban areas.” (Newman p.35) Not only could urban farming and gardening benefit the city in all the ways outlined above, but it would also have the implicitly sustainable attribute of needing minimal transportation to reach its destination. This type of multiple-solution thinking is characteristically possible with local food systems, and demonstrates how new efficiencies of place could lead to reductions in environmental cost.



Section E Notes:

1. Feagan, Robert. "The place of food: mapping out the 'local' in local food systems." Progress in Human Geography (2007) 31:1
2. Halweil, Brian, and Prugh, Thomas, ed. "Home Grown: the case for local food in a global market." Worldwatch Paper 163, Nov 2002.
3. Hill, Holly. (2008) Food Miles: Background and marketing. Retrieved from attra.ncat.org/attra-pub/PDF/foodmiles.pdf.
4. Martinez, Steve et.al. Local Food Systems: Concepts, impacts, and issues, ERR 97, U.S. Department of Agriculture, Economic Research Service, May 2010.
5. Newman, Lenore. "Extreme Local Food: Two case studies in assisted urban small plot intensive agriculture." Environments 36.1(2008).
6. Orr, David. Ecological Literacy: Education and the transition to a postmodern world. Albany: State University of New York Press, 1992.
7. Rich, Sarah. "Transportation, Food Security and Local Economies" <http://www.worldchanging.com/archives/006119.html>
8. Shigley, Paul. "When Access is the Issue: What cities are doing to get healthy food into underserved neighborhoods". Planning 75.8 (2009): 8-13.
9. Teig, E., et al. "Collective Efficacy in Denver Colorado: Strengthening neighborhoods and health through community gardens." Health and Place (2009).

Section F: Urban Proposal: Corridor and Node System

My urban strategy hinges on a scheme that combines corridors and nodes that work together. Drawn from the work of both Kevin Lynch and David Graham Shane, my interpretation of these two urban elements can be understood as linear organizing elements and centering elements. (Lynch, Shane)

Corridors are linear elements of movement that play a strong role in how residents picture their city. Because of the affordance of movement and concentration of people along corridors, they become an important asset when trying to communicate to a group of people within a certain district. The corridors, if treated as expressive devices as well as elements of movement, should be seen as a great opportunity to affect public perception. The corridors in my proposal are meant to combine the visible food system with movement of people in the city. The aim here is to increase visibility and interaction where people are as a way to leverage local investment.

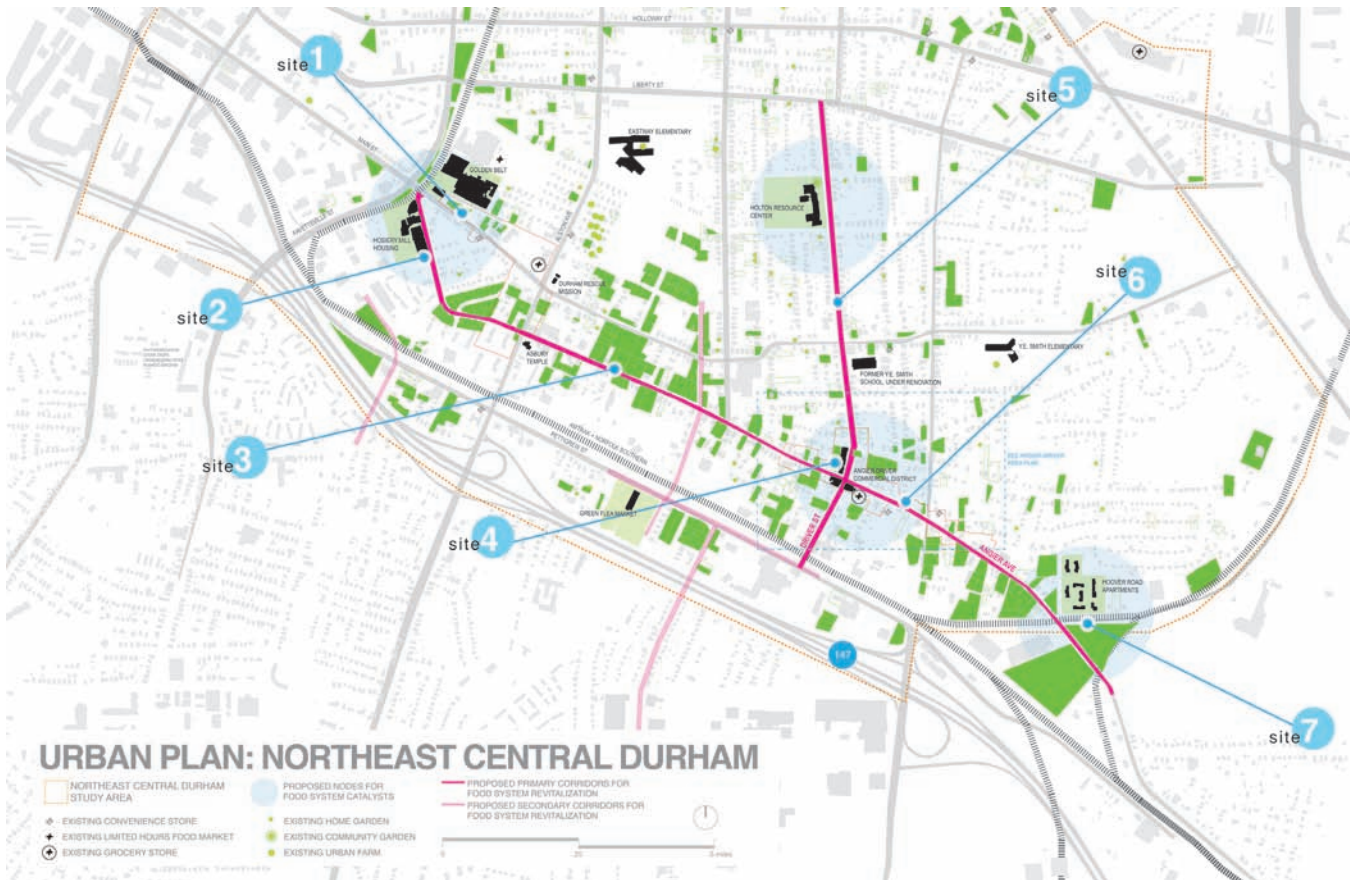
Nodes, as centering elements, become the reason for movement along the corridors. The nodes are meant to center institutional or community resources, and to centrally locate catalytic projects. Location of the nodes along corridors, or at termini, will in turn increase traffic on the expressive corridors.

While development of these elements came out of a number of urban models, Specific locations for the different elements came from research into the historic uses, built fabric, community and cultural resources, future ideas about highest and best use, anecdotal real estate information, and the resource of vacant lots.

Once I have established the applicability of a simple corridor and node system, the next step is to determine how it will respond to external pressures over time. The system of corridors and nodes is meant to allow growth over time, flexibility in expression and development, and a measure of responsiveness to feedback within the system. In a system that hopes to draw stability from both top-down and bottom-up investment, these attributes are essential. It is my proposal that this system has the inherent capability of adjusting to many different feedback types without losing its essential qualities.



THREE PHASES OF CORRIDOR AND NODE EXPANSION



URBAN PROPOSAL:
CORRIDORS AND NODES

At each of the seven sites labeled here, I've worked out scenarios within the system as a way to test my design principles. I don't see these scenarios as answers per se, but instead as examples of what could be. At each site I asked "What If? What are the opportunities here? What does the system want here? What would the system support here? What is the neighborhood like here?"

The seven investigations have been resolved to different levels. The last of the seven, numbered 4 here, is the building that I mentioned at the beginning. My method involved seven quick studies, further investigation of three, and more development of the last one, the food hub at Angier and Driver.

What follows is a list of intentions, priorities, and discoveries for each of the seven sites for investigation.

1. Golden Belt Farms - Priorities include visibility, quick development that includes garden, cafe, event, and street space to the public. Program is layered for lots of interaction and chance meeting, places for watching and doing, and both openness and security.
2. Hosiery Mill Community Garden - The senior population in this large Section 8 housing complex could make very good use of the adjacent, unused open space as a garden for its residents.
3. Vacant lots - How do you create short-term solutions that do not pre-

empt highest and best use, but create an expressive, participatory system in the short-term? Do you make vacant lot solutions easily switchable? Proposals include nomadic gardens, land trust gardening, phytoremediation of contaminated sites, cover crops, and territory for short-term crisis housing.

4. Angier-Driver Food Hub - How do you build a new generation of food entrepreneurs and farmers? How do you support and encourage all parts of a decentralized system? How do you connect the local and small with the regional and large? The following Section addresses the development of the Food Hub.

5. The Corridor, typ. - What does the corridor do? What does it look like? What policies and infrastructures can layer along primary urban circulation? Because of the crucial role of the corridors, the food system here must be as visible and interactive as possible. Every small action on the corridors can have magnified impact.

6. East Durham Filling Station - Throughout NECD are abandoned buildings. Adaptive re-use and visible program is an alternative to demolition, makes sense economically and culturally: maintaining identity of place.

7. Hoover Rd - At the edges are larger tracts that suggest larger-scale visions in agriculture and green technology. More employment. More investment. Historical mirror.

Section F Notes:

1. Lynch, Kevin. The Image of the City. Cambridge: MIT Press, 1960.

2. Shane, David Grahame. Recombinant Urbanism: Conceptual Modeling in Architecture, Urban Design, and City Theory. Chicester England: John Wiley and Sons, 2005.



site **1**

GOLDEN BELT FARMS

Program includes community garden, pollinator garden, urban farm, public space, cafe, greenhouse, apartment.

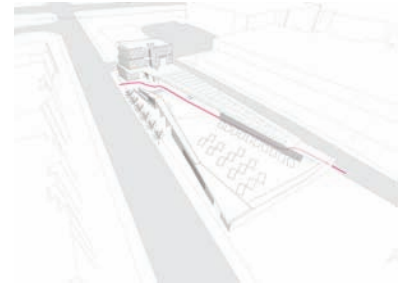
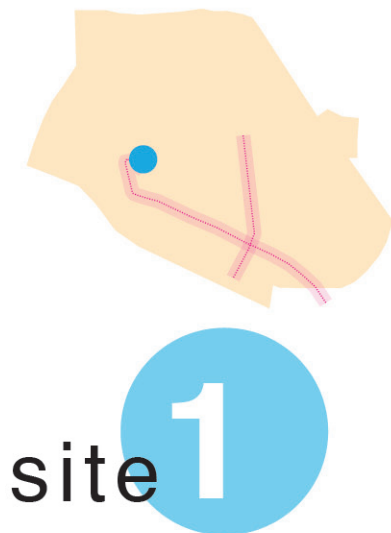
The site is meant to combine urban food production with the marketing function of a billboard that promotes the local food initiatives in the neighborhood.



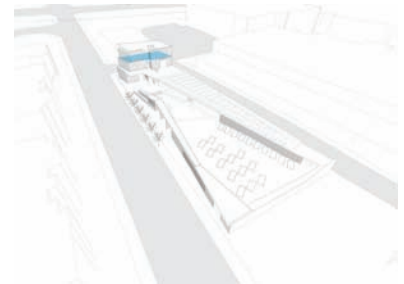
VIEW LOOKING EAST FROM MAIN AND FAYETTEVILLE ST



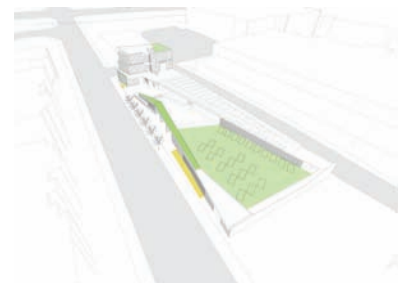
VIEW OF GARDEN COURTYARD



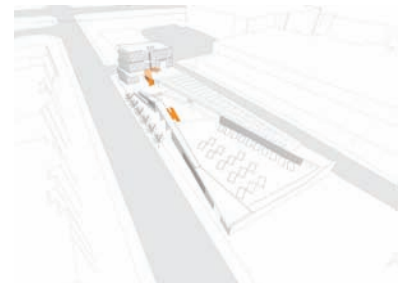
PUBLIC PATH THROUGH SITE



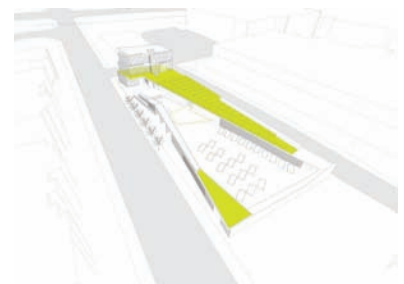
APARTMENT



COMMUNITY GARDEN

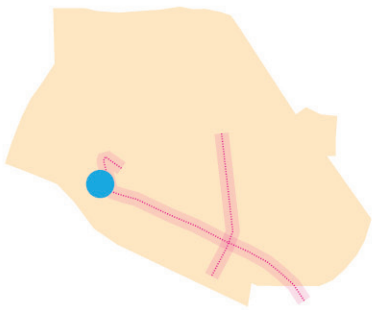


KITCHENS



URBAN FARM





site **2**

HOSIERY MILL GARDEN

Program includes community garden and collective tool shed.

The site is meant to take advantage of an unused plot of ground on the Hosier Mill section 8 site, transforming it into a community garden aimed primarily at the senior residents of the building.



VACANT LOT TRANSITIONS

Program could include any short-term food system or community activities, such as nomadic farms, cover crops, phytoremediators, land trust gardens, or even crisis housing sites.

The nature of vacant lots demand that any program for these transitional spaces be switchable, able to respond to the changing needs of the community.



site **4**

ANGIER - DRIVER FOOD HUB

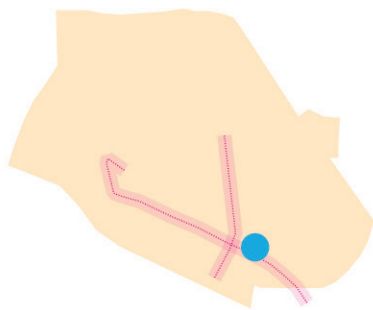
This intervention is described at length in Section G.



CORRIDOR STRATEGIES

Programming the corridor involves affordance for all types of movement within the city, and promotion of visible and interactive food system activities. These activities should include curbside gardens, garden stands, decentralized urban farms, cooperative distribution, among others.

The primary aim here is to increase multi-mode traffic and at the same time increase intensity and legibility of the local food system.



site 6

EAST DURHAM FILLING STATION

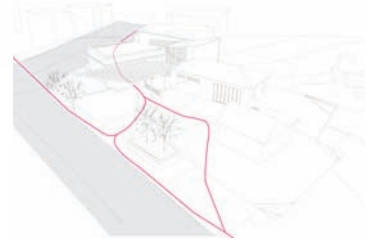
Program of this adaptive re-use site takes advantage of the station roof for visible and secure hydroponic research, and uses the two-bay garage for shop space. A stair connects the two areas. Public space is preserved and amended to support inclusive activities such as market stands and shaded benches.



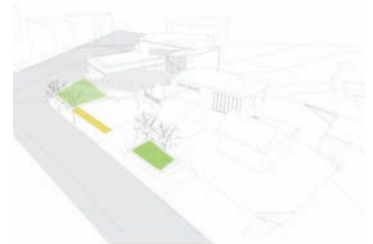
PROPOSED COURTYARD ACTIVITIES



VIEW ACROSS ANGIER AVE



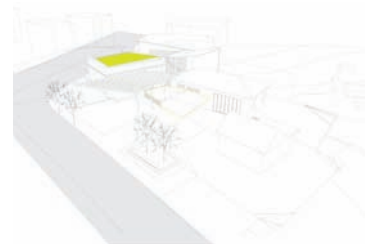
PUBLIC PATHWAYS



RAIN GARDENS



KITCHENS



HYDROPONIC DECK



site

6



site **7**

HOOVER ROAD FARMS

Program includes farmers market, nursery, green energy center.

At the margins of the neighborhood, along infrastructural routes, larger tracts of vacant land offer opportunity for larger operations that could become significant employers in the area while still forwarding the agenda of local food systems and economies.





Section G: Building Proposal: Angier-Driver Food Hub

As the primary building design effort of my project, the Food Hub was conceived as a direct outgrowth of my urban plan, and was selected as a vehicle project that would incorporate a wide range of food system program. The Food Hub acts as an Urban Farm Incubator, training the next generation of urban farm entrepreneurs, as a local distribution and storage center for local and regional food, and as a series of visible, interactive programs with important productive and promotional roles in the urban food system of NECD.

As shown in the program diagram, many related uses are proposed, all of which are able to function independently but also as part of a larger whole. By choosing a site that is both vacant lot and commercial street frontage, I was able to take advantage of a variety of different urban conditions. The greenhouse and food truck kitchen face directly south onto Angier Ave. The cafe and marketplace occupy existing commercial buildings on South Driver, but have been pulled back from the street to allow sidewalk penetration into the building. The north end of the building becomes loading dock for the distribution hub, opening onto Ashe. The western face of the building presents the building's primary facade, offering entry from the proposed training gardens to the west of the building.

The form and plan were developed through a combination of factors, shown in the following plan diagrams. Three 'chimneys' became a way to organize the commercial kitchens and to play off of the geometry of the commercial block's party walls. A circulation pattern worked against the wall-like effects of the chimneys, and supported my idea that there ought to be places for movement, lingering, watching and doing. Finally, the conceptual movement of food through the building began with growing in the greenhouse, travel to and through the kitchens, to the north where packing and storage prepared the food for distribution to the neighborhood.

Overall, the idea of the building is to overlap and mingle a number of different uses across all times of day and year. By doing so, it is hoped that people will be met by surprise, discovery, and interactions with people and opportunities that don't occur elsewhere. My goal, as with the entire body of research, is to create a place that encourages participation, choice, and inclusiveness, and at the same time building a sense of place that is derived primarily from the people that use it.



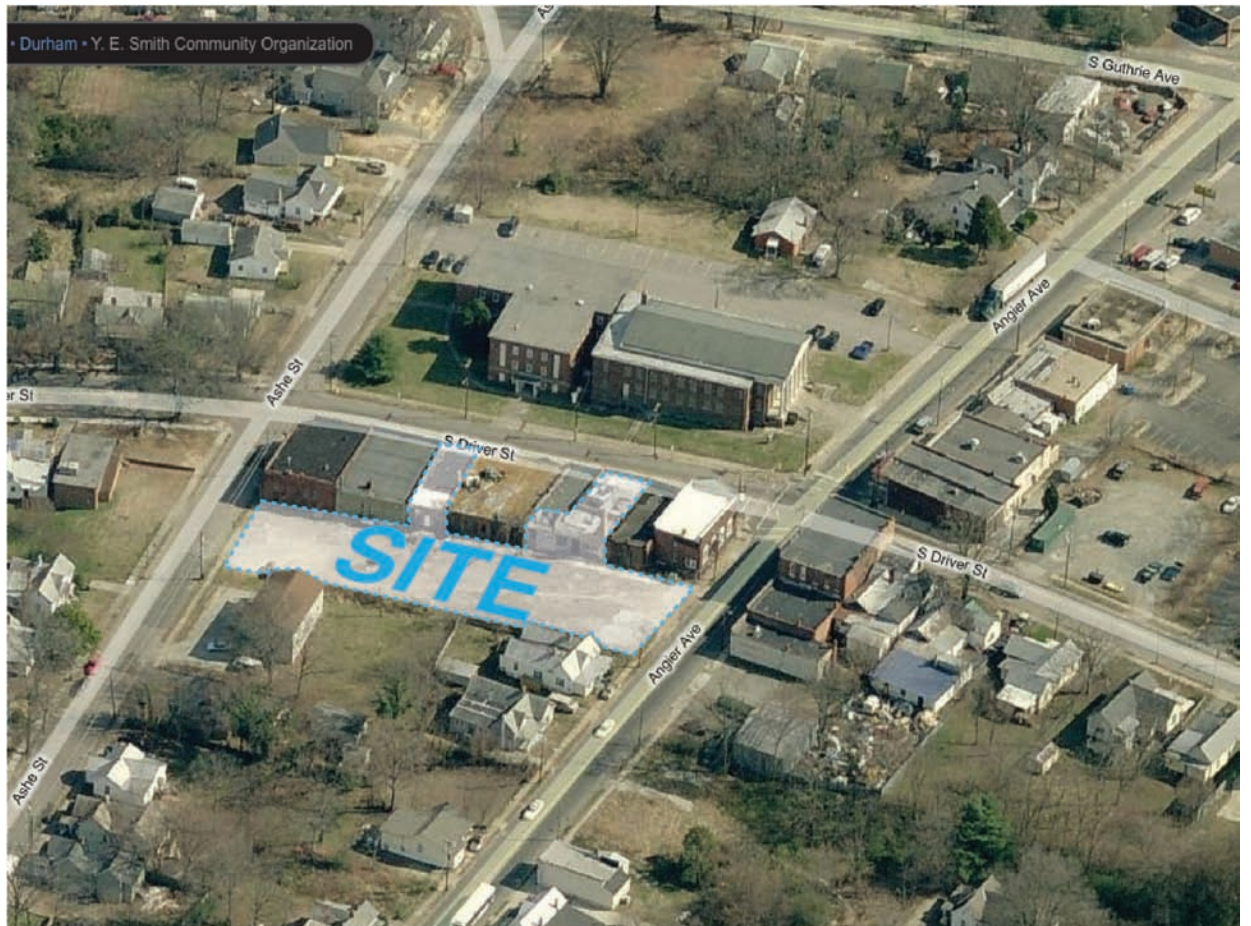
**SOUTH DRIVER
FOOD HUB**

A: 2022 ASHE	8875 SF
B: 2019 ANGIER	4700 SF
C: 2021 ANGIER	5420 SF
TOTAL	18995 SF

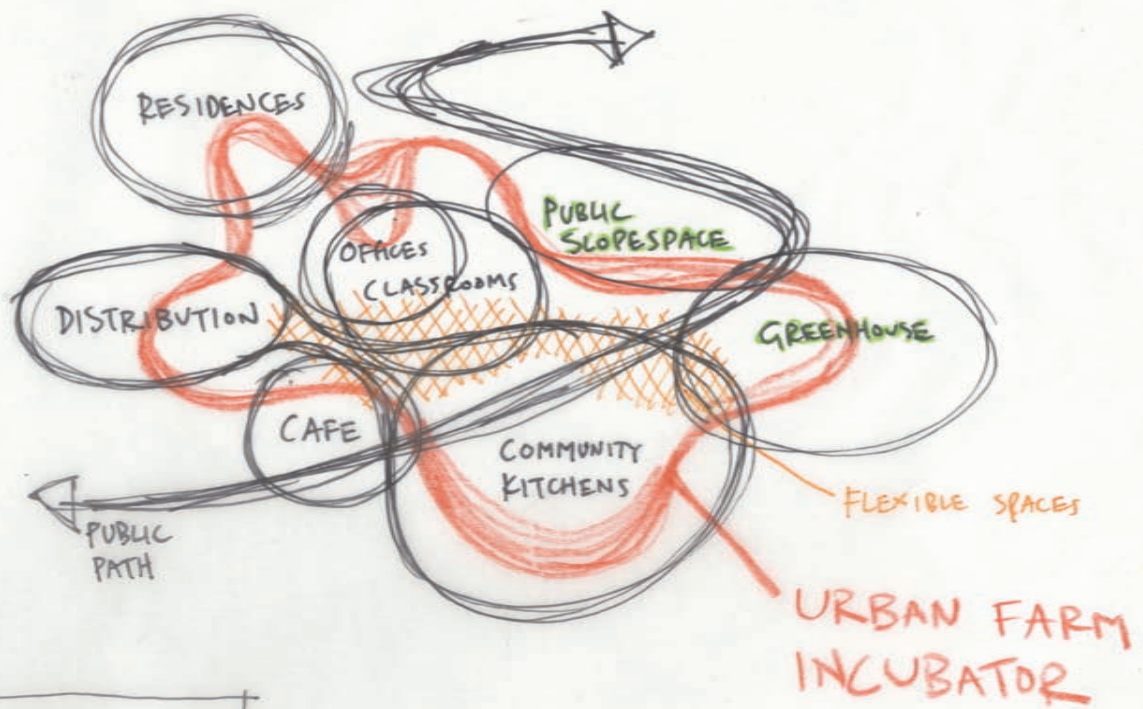
PROJECT SITE



PROJECT SITE, FROM EAST



PROJECT SITE, FROM WEST



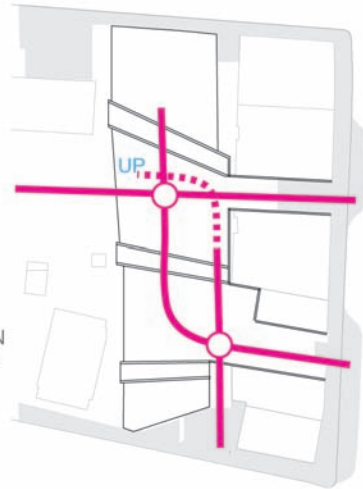
ANGIER-DRIVER
FOOD HUB PROGRAM

FOOD HUB PROGRAM DIAGRAM

THREE 'CHIMNEYS'
ORGANIZE VERTICAL
SYSTEMS, STRUCTURE,
AND KITCHENS

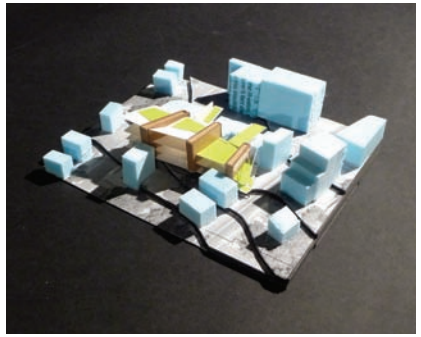
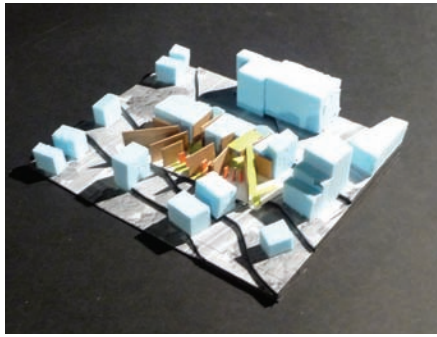
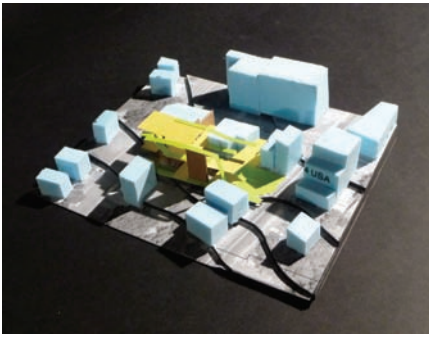


CIRCULATION WITHIN
THE PUBLIC SPACES



MOVEMENT OF FOOD
WITHIN HUB

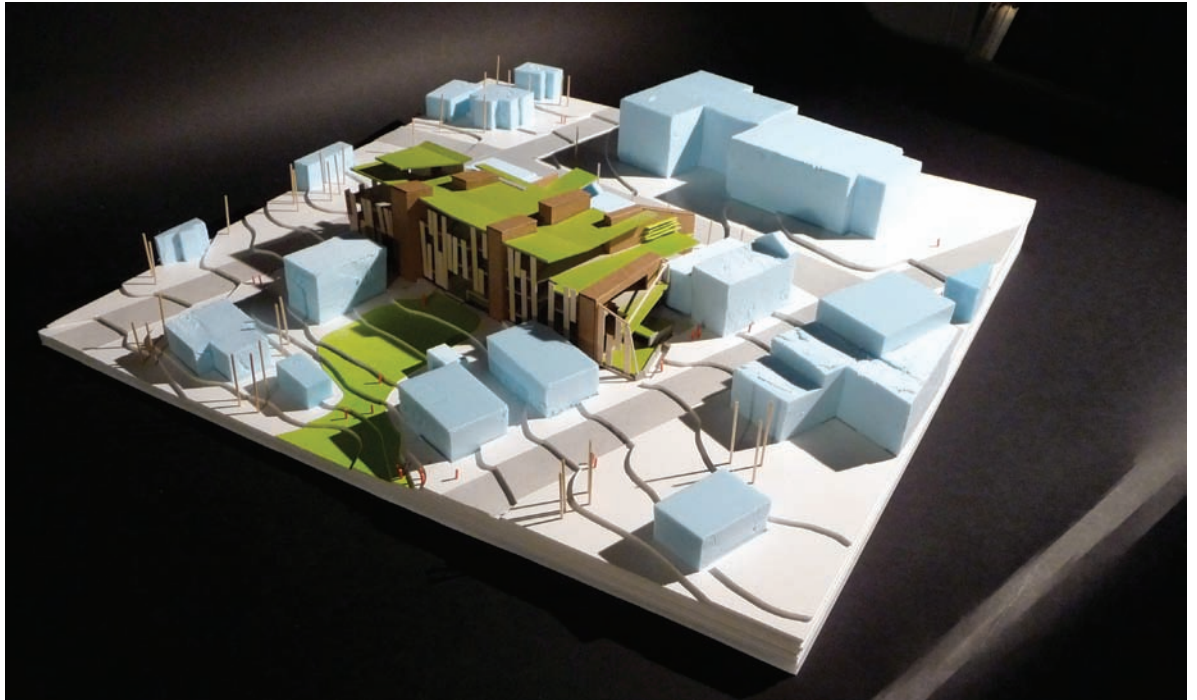




THREE SKETCH MODELS OF FOOD HUB

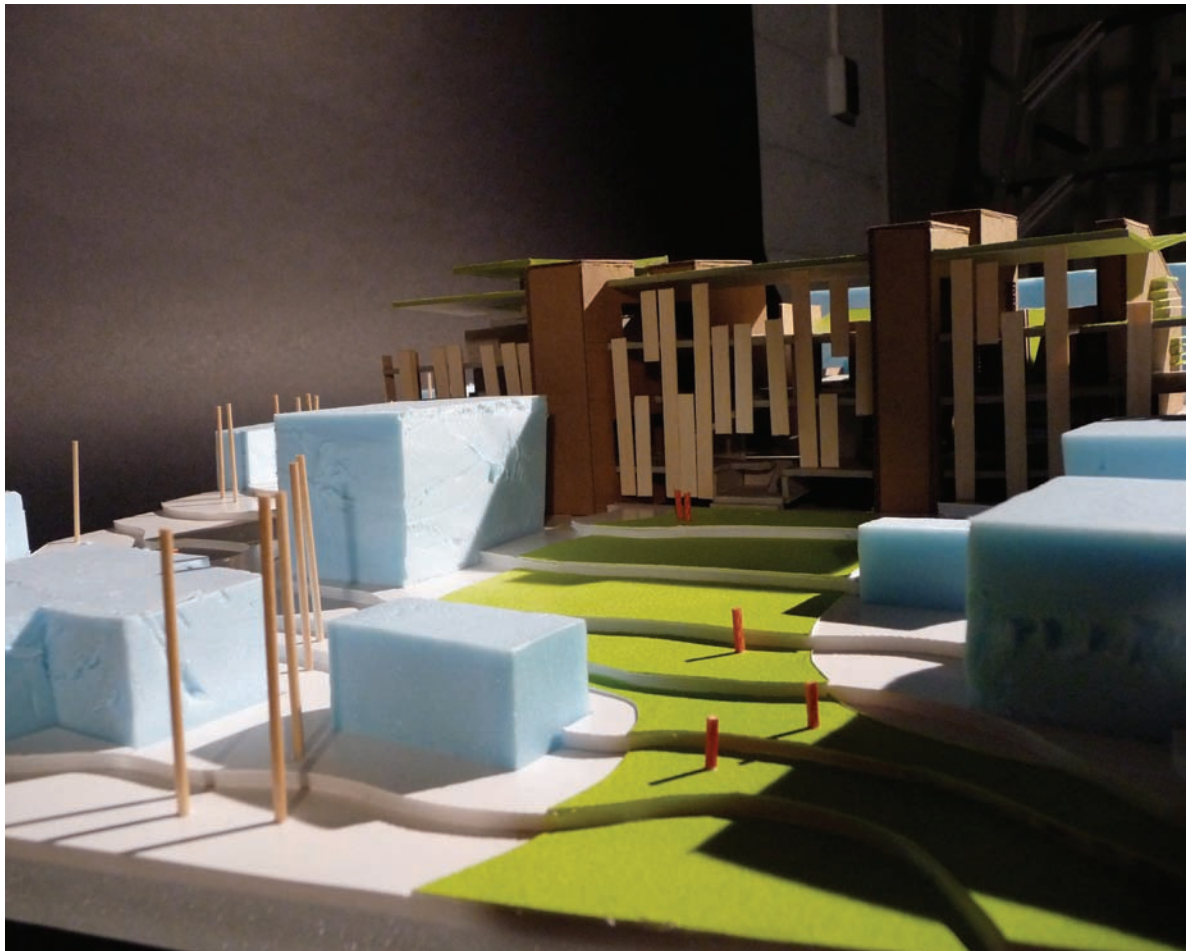
SITE MODEL OF FOOD HUB





SITE MODEL OF FOOD HUB

SITE MODEL OF FOOD HUB





VIEW FROM SOUTHWEST

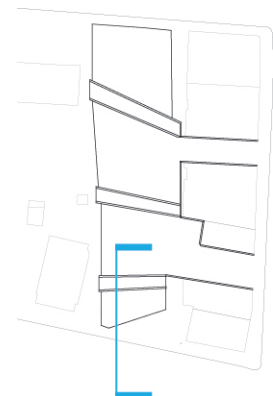


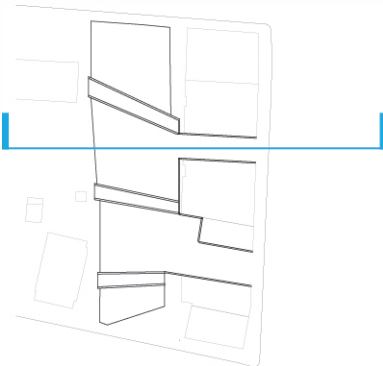
VIEW OF GREENHOUSE AT ANGIER AVE





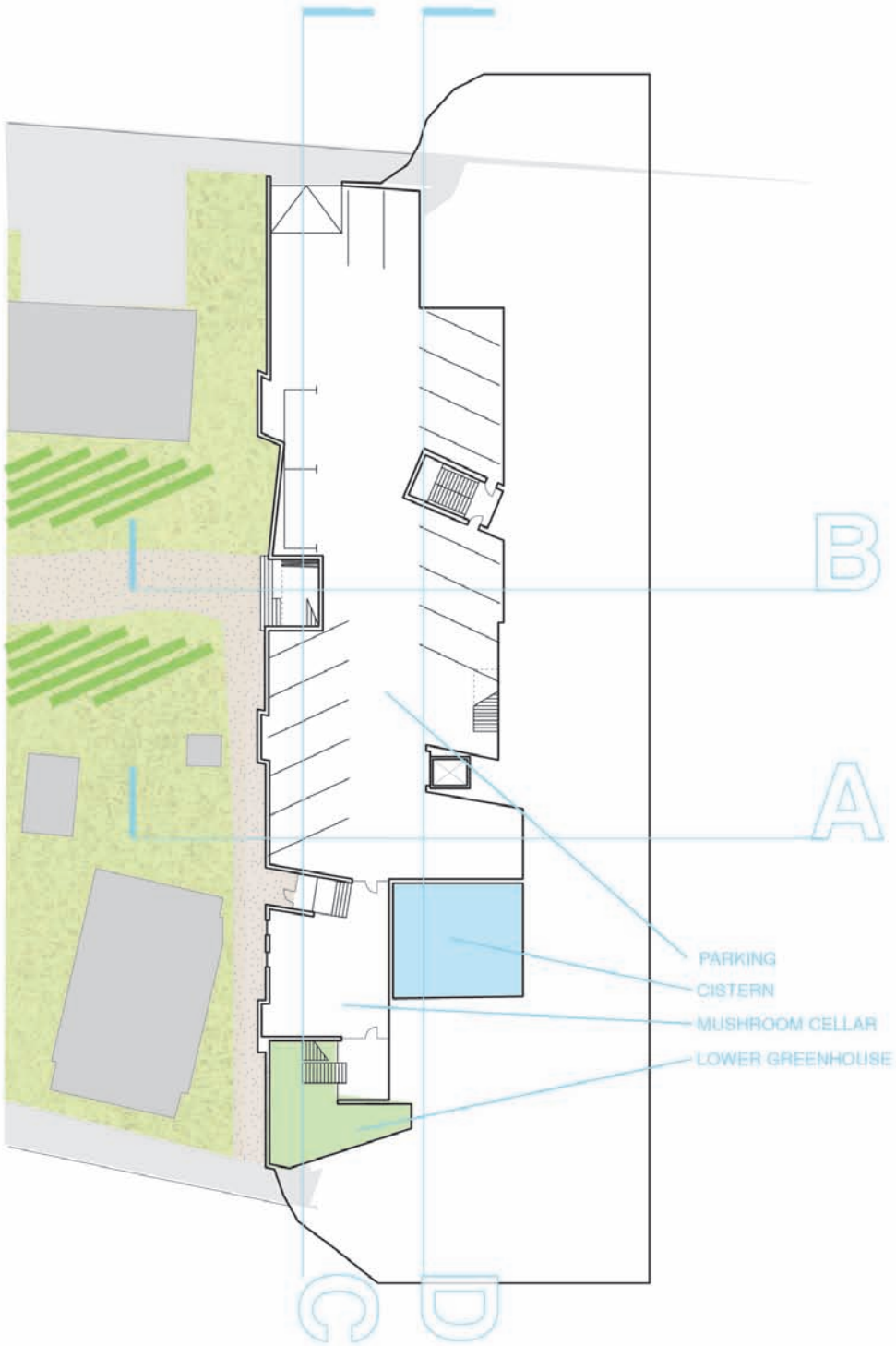
SECTION VIEW OF GREENHOUSE





SECTION VIEW OF TRAINING FARM, INFO
DESK AND MARKETPLACE





LOWER LEVEL
13500 sf

PARKING
CISTERN
MUSHROOM CELLAR
GREENHOUSE

15 spaces
70000 gal
1100 sf
1000 sf

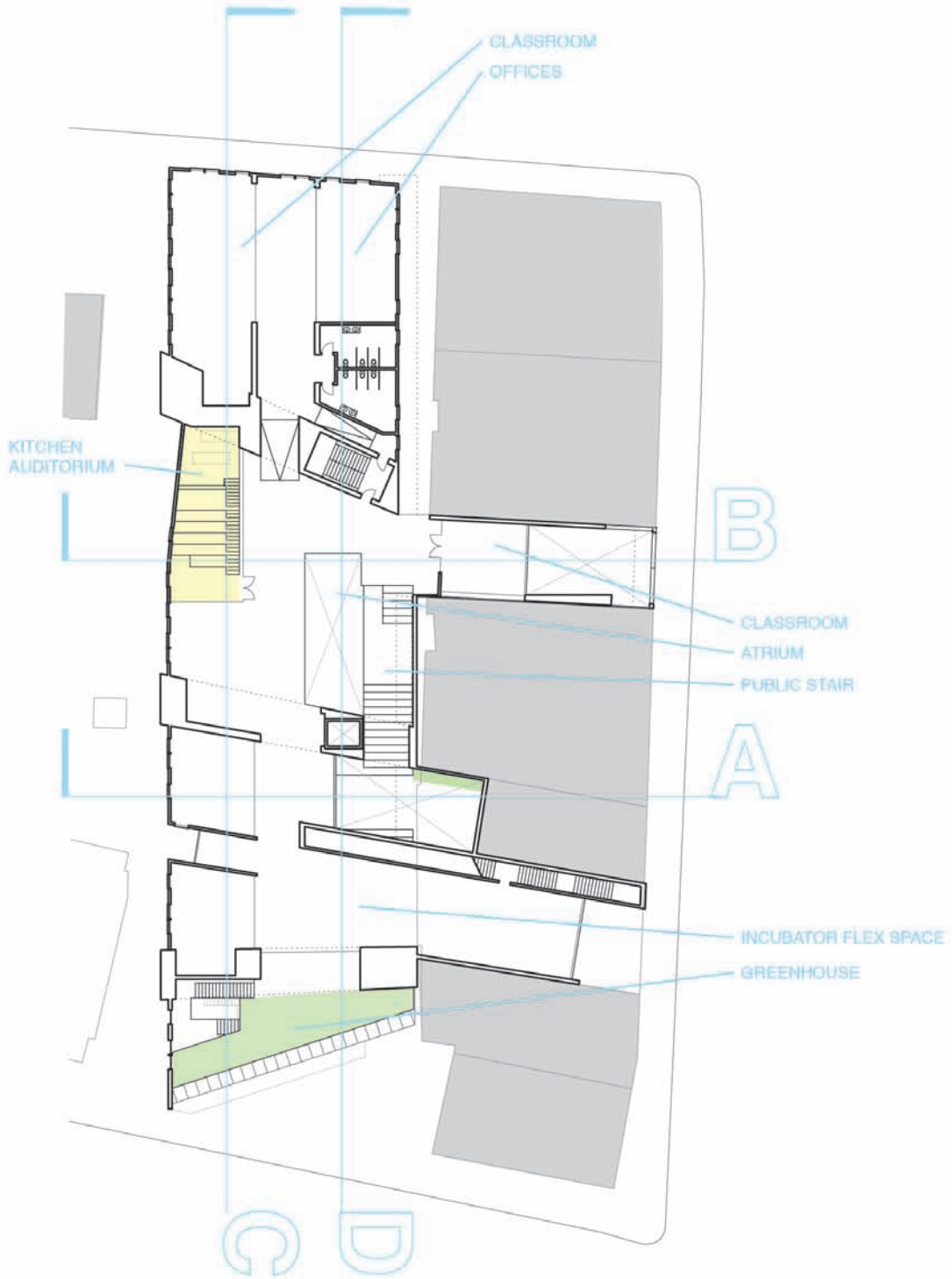




STREET LEVEL
17000 sf

CAFE	1800 sf
KITCHENS	3600 sf
COLD STORAGE	1600 sf
MARKET	1000 sf
OPEN SPACE	4500 sf
GREENHOUSE	1000sf

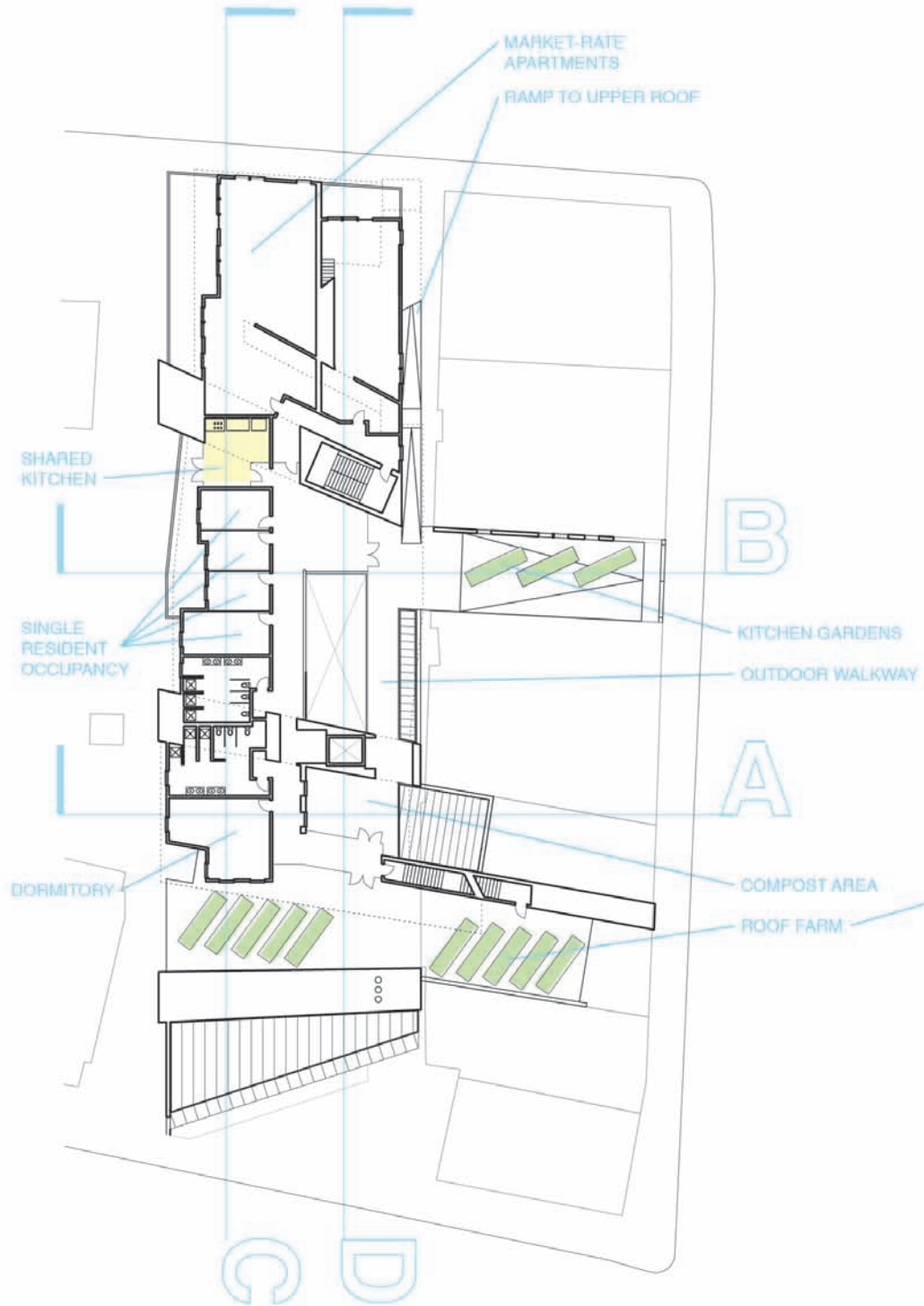




SECOND LEVEL
14500 sf

CLASSROOM	5000 sf
OFFICE	1300 sf
AUDITORIUM	800 sf
OPEN SPACE	3000 sf
GREENHOUSE	1000 sf





THIRD LEVEL
8000 sf

APARTMENTS	2800 sf
S.R.O./DORM	2600 sf
ROOF FARM (ext)	3500 sf



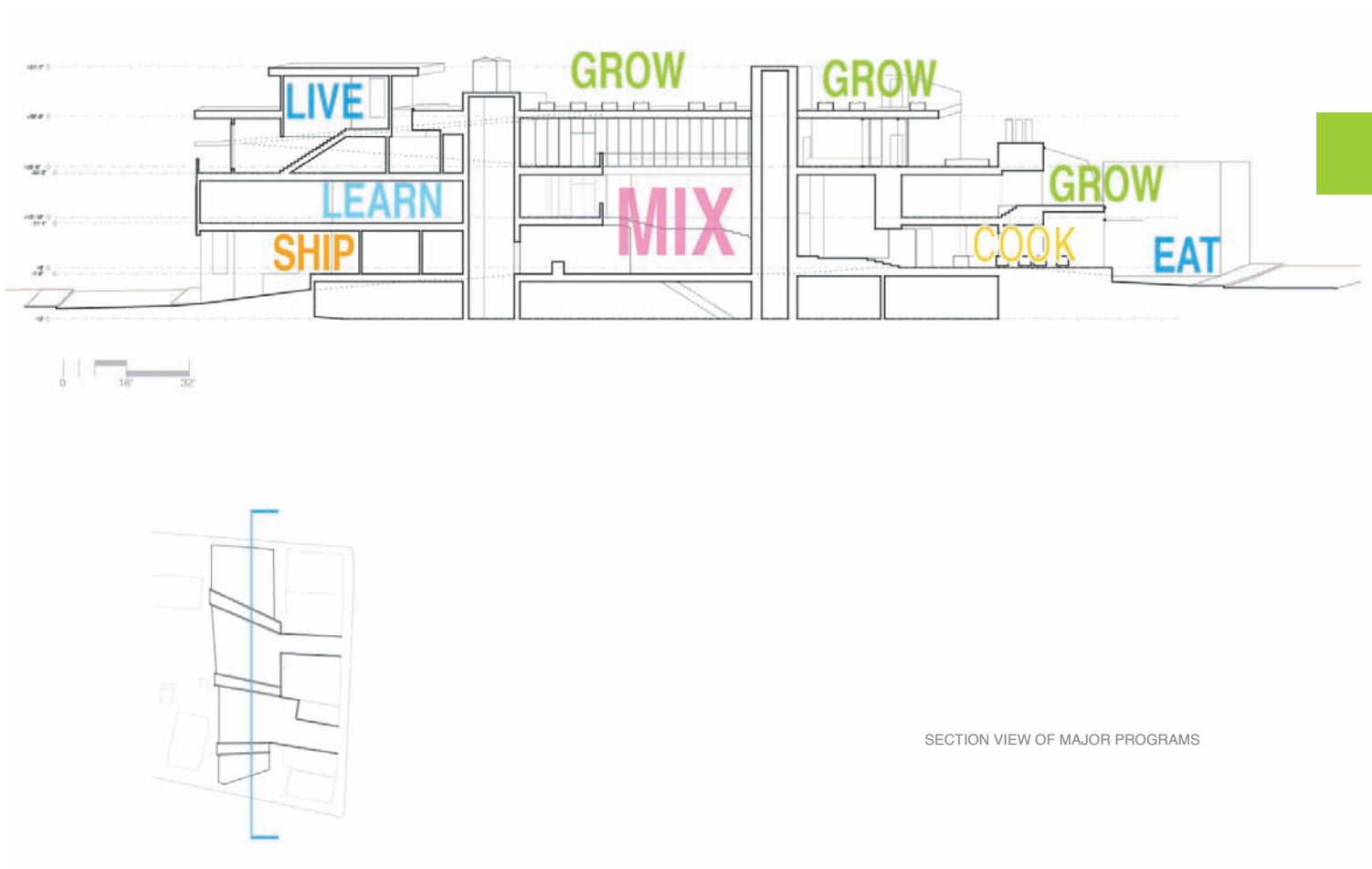


ROOF LEVEL
900 sf

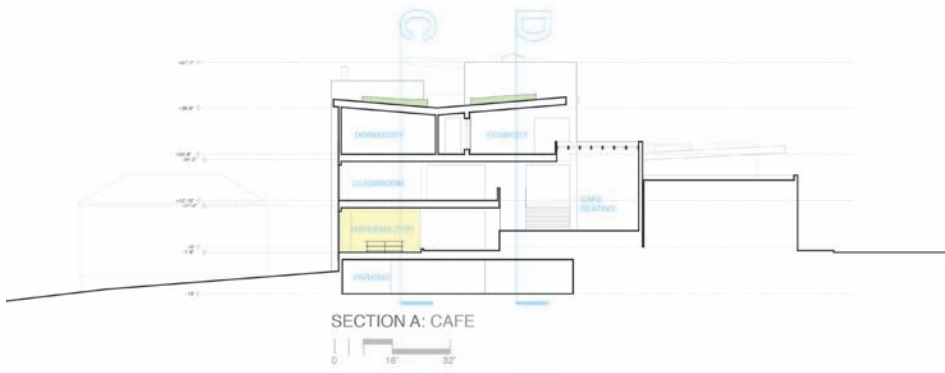
APARTMENT
ROOF FARM (ext)

vv800 sf
7000 sf

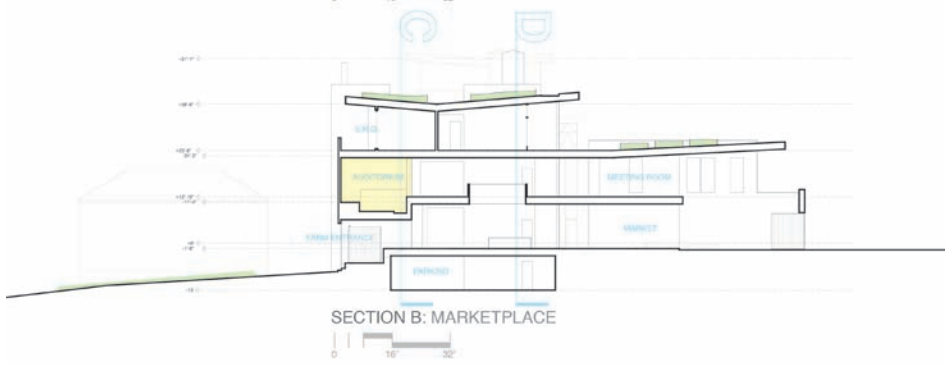




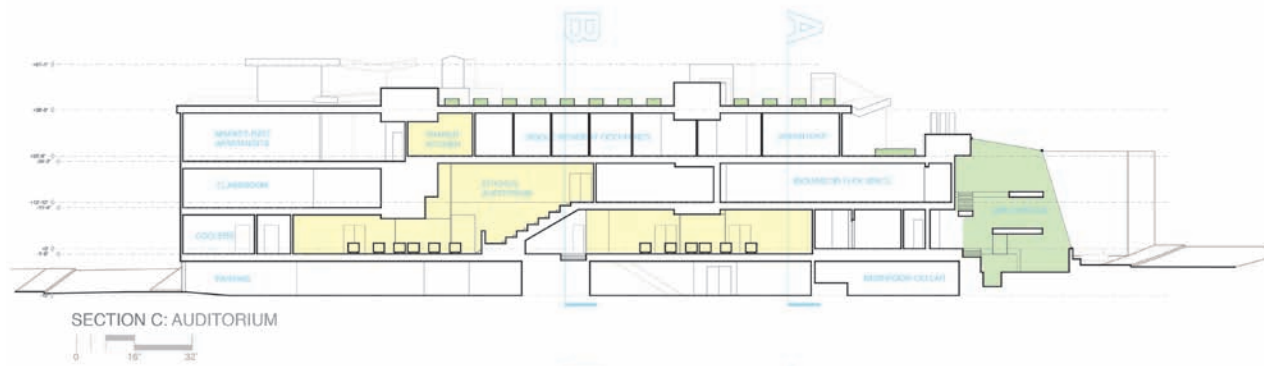
SECTION VIEW OF MAJOR PROGRAMS



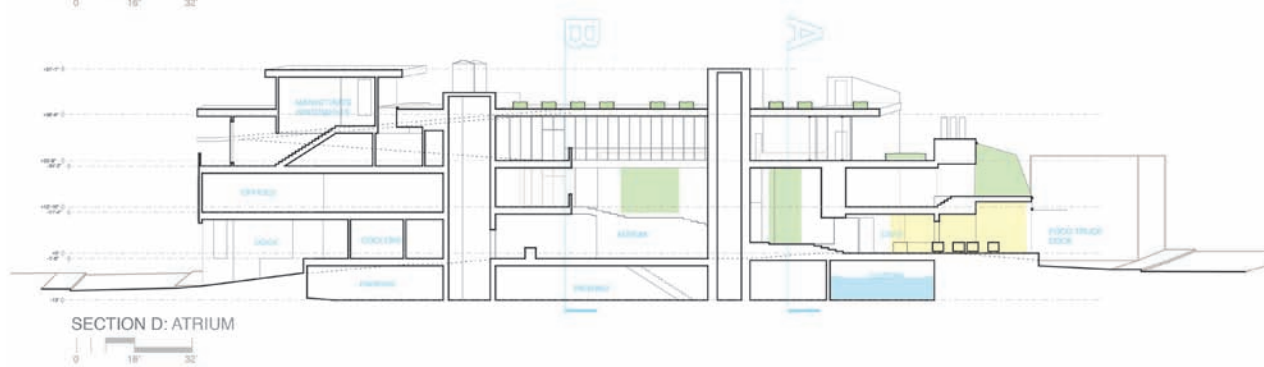
SECTION A: CAFE



SECTION B: MARKETPLACE



SECTION C: AUDITORIUM



SECTION D: ATRIUM



OCCUPATION OF DIFFERENT AREAS BY TIME OF DAY AND YEAR





OCCUPATION OF DIFFERENT AREAS BY TIME OF DAY AND YEAR

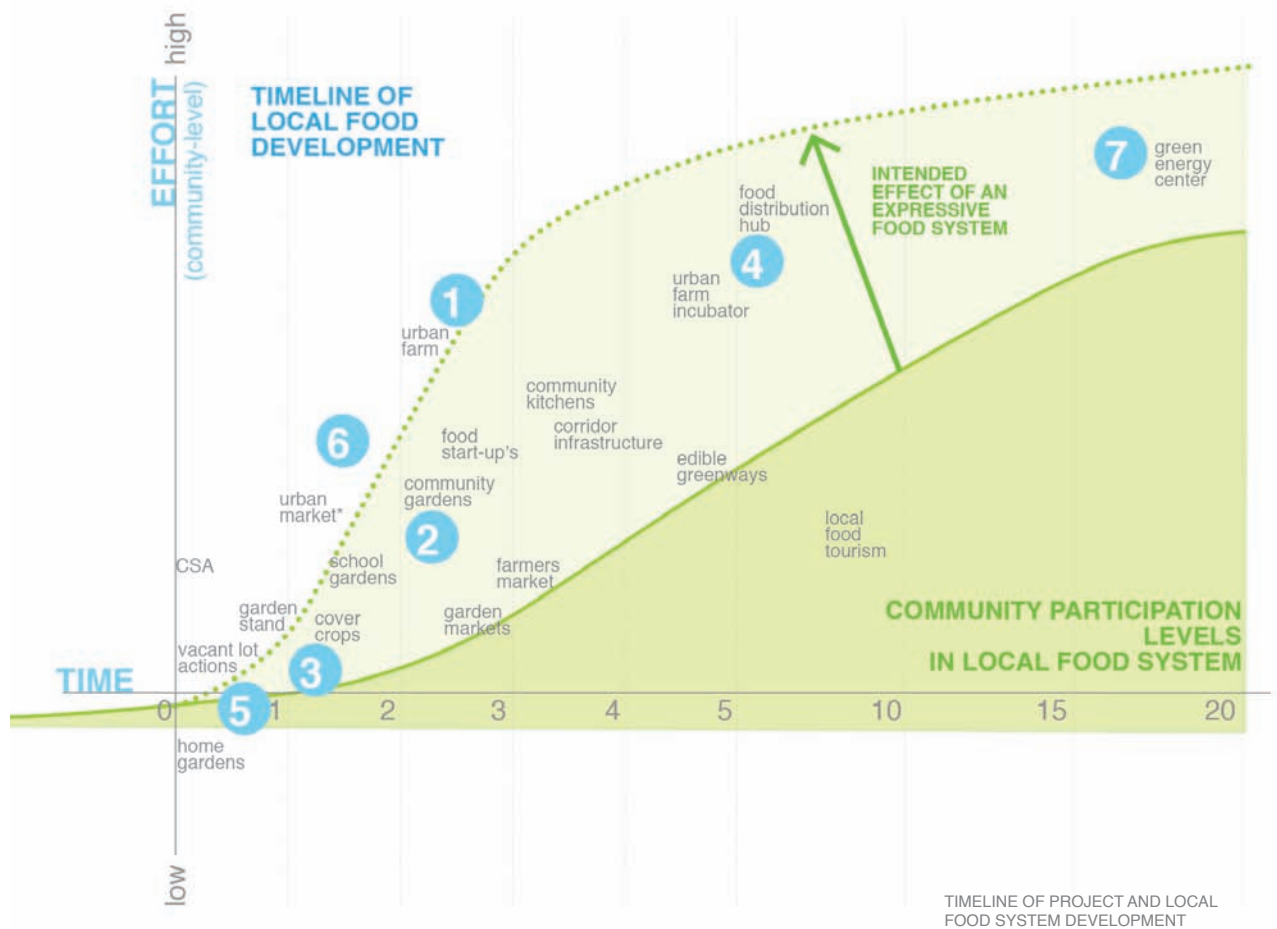




OCCUPATION OF DIFFERENT AREAS BY TIME OF DAY AND YEAR







TIMELINE OF PROJECT AND LOCAL FOOD SYSTEM DEVELOPMENT

Section H: Conclusions

In looking back on my process and designs, I remind myself that at issue here is not necessarily whether I have made the most functional urban plan, and it is not whether the architecture of my building is especially beautiful. The point that I have held myself to, and the point that I feel I must address, is the role of the architect and designer in a local food system. As my primary research question, I have tried to stay within the boundaries it suggests: definition of a local food system, identification of gaps or areas for intervention, and design proposals that directly respond to the conditions of food in the district. On these criteria I have discovered that design has a significant role to play.

The above graphic illustrates two things. First are my urban interventions, scattered across the next few years, correlated to each's required level of community effort. This suggests that my urban scheme is made up not of rigid timetables and synchronized deployment, but instead a loose set of interlinked agendas meant to respond flexibly to feedback. An urban farm may happen here, or there, or then, or now. Nevertheless it is growing from the same system, the same rules. The uncertainties of the future are written into the equation.

Second, the graph shows two green lines, one solid and one dashed. These show resident participation in a local food system. My

relative impression is that Durham, currently, is something like the solid green line. Through many outreach efforts, a successful farmers market, and noteworthy grassroots efforts, the participation in Durham's local food system is growing. But these efforts are rarely coordinated, and often rolled out without regard to larger spatial ideas of overlapping effort where synergistic connections could be promoted.

The second line, the dotted one, is the aspiration of the designer. It states that participation can be higher, sooner. The role of the architect and designer is to bring this line, this measure of inclusion, to its steepest curve. The benefits of local food are well known, and are well suited to address the myriad problems in an underserved neighborhood, and by increasing participation the benefits of local food will be most widely felt. Through intentional interactivity, visual access and direct physical access the physical form of local food can work to increase awareness of itself.

This visualization of outcome draws together design effort and public benefit in a way that clarifies applied design. In this picture the designer has a certain responsibility, that of reading and understanding the capacity of spatial systems to affect change in social, economic, and behavioral systems.

My primary research question read: How can architectural design strategies strengthen community food system initiatives and interventions? In essence, how to move the curve of participation? But at a more basic level, do we as designers have a role in local food systems? Do we need to join the conversation happening in informal meeting spaces all over the country about local food, food sovereignty, agriculture policy, public health and food access?

Interestingly, there is a flip side to the idea that designers have a role in local food systems, and that is that local food systems may have a role in design, and on designers.

There is poetry in the idea that the spaces we design in turn design us. Perhaps it is too much of a simplification of the phenomenon, but in any case this relationship can be found in my work. I have gotten to know local food systems to the point that I could use their internal logic as a design tool, both for design proposals and evaluation. This could be seen as the space that I design - the space of urban food. It's production, distribution, processing, and consumption. I have speculated upon the way in which these spaces are occupied and transformed. As I became closer and closer to the understanding of local food systems I began designing from a standpoint that incorporated the intelligence of these systems. The buildings and relationships that I designed took on qualities of the scale-less system, and my proposals grew to be nested within one another, mirrors of similar patterns at different scales.

Site by site my investigations not only speculated on what could be, but they also revealed the development of my association with urban food systems. Increasingly my proposals showed not only a response to local food and revitalization, but reflected the change in my design thinking. Multiplicity, parallel solutions, informal actions, redundant processes all came forward as primary tactics in design solutions.

As I designed spaces for food, ideas about food systems shaped

my design thinking. The simultaneous result of deep investigation inverted my research question. It is no longer only whether we as designers have a role in local food systems, because I think we can't responsibly avoid it. The question for me has shifted, and now I want to know how we design through applied systems, and how we find ways to listen to the system.

The neighborhood of North East Central Durham is still in crisis, and there are groups in Durham that are working to address their needs. My work will not change either of those facts. What I can do, as a designer, is facilitate the effective placement of one in relation to the other.



Section I: Bibliography

This collection of primary references reflects my literature search into four major areas: food systems, landscape urbanism, mapping, and food architecture. I have included annotations on selected entries.

1. 49 Cities : Workac. Storefront for Art & Architecture. 2010.

2. Abrams, Janet, and Peter Hall. Elsewhere : Mapping New Cartographies of Networks and Territories. Minneapolis, Minn.: University of Minnesota Design Institute : Distributed by University of Minnesota Press, 2006.

Mapping is “the conceptual glue linking the tangible world of buildings, cities and landscapes with the intangible world of social networks and electronic communications.” (p 12)

This book presents the state of thinking about mapping in the information age, as a way to make complex systems accessible, and to render visible the unseen forces in our world. My research draws heavily on food system mapping, and spatial investigations of these systems. The value in this book is the depth of discussion, the volume of precedent and example, and the functional categories in which maps are sorted. This act of sorting and naming, especially, will help me think through the act of making maps, which, in essence, is an act of redescribing the territory of my project.

3. Adams, Brooke. Sowing the Seeds of Success : Cultivating a Future for Community Gardens., 2008.

4. Andraos, Amale, Dan Wood, and P.S. 1 Contemporary Art Center. Above the Pavement—the Farm! : Architecture & Agriculture at P.F.1. 1st ed. Vol. 02. New York: Princeton Architectural Press, 2010.

An account of workAC’s project at PS1 in New York.

The bulk of this small book is a collection of descriptions about the project, given by the architects, engineers, curators of PS1, and many, many other people that were involved in the realization of the project. It provides an excellent example of the radical multi-disciplinary nature of this project. Of particular interest is the high level of involvement by a few local farmers, horticulturists, and product developers. The synergistic relationships that supported this project are worth taking note of.

Also useful is a short piece at the end by Meredith Tenhoor called “The Architect’s Farm.” This essay describes the role of architecture in food, from the political symbolism of Paris’ Halle au Ble to Corbusier’s Radiant Farm to MVDRV’s Pig City. The ‘horizontal’ strategies of community-based, back-to-the-land, CSA-producing small farms are contrasted with ‘vertical’ strategies such as MVDRV and of Despommier, and an ‘oblique’

solution is posited that could generate community and efficient urban production.

The closing question, then, is not far from my own thesis question: “What would happen if architects did what they have always done: design a better means of navigating the politics and techniques of contemporary food production?” Kurokawa’s Agricultural City is held as example, as is PF1.

5. Beatley, Timothy, 1957-. “Ever Green: From Turfgrass to Tomatillos.” Planning 75.8 (2009): 50-1. .

6. Coff, Christian. Ethical Traceability and Communicating Food. Vol. 15. Berlin: Springer, 2008.

This book presents a rather technical discussion of food traceability as a crucial issue following serious concerns in the global food and feed streams around the turn of the century. While the technical aspects of the work are outside the scope of my project, the introduction of this book provides an excellent summary of consumer concerns within a global food system. In making a case for local food, the information here will be very useful.

“The physical, social and mental separation of production and consumption, which is characteristic of modern societies, means that in most cases producers and consumers do not know each other and do not know what happens during production processes.” (p. 8)

7. Conard, Michael, and Kubi Ackerman. “Designing a Foodshed for New York: Architects Lead the Way in Developing a Regional Food System to Provide Healthful Food to Underserved Urban Areas.” Oculus 2009- 71.4 (2010): 30-1.

8. Corner, James, and Alan Balfour. Recovering Landscape : Essays in Contemporary Landscape Architecture. New York, NY: Princeton Architectural Press, 1999.

9. Despommier, Dickson. The Vertical Farm: feeding the world in the 21st century. New York: Thomas Dunne Books, 2010.

Written by a microbiologist and public health scientist, this book outlines a dramatically modern, utopian vision for urban food production. Large-scale vertical farms in urban centers, the author says, will revolutionize our food systems and essentially fix all of our ecological and environmental crises in one bold move.

I agree with a central point that Despommier makes: “we continue to urbanize without incorporating the necessary skills to live sustainably.” (p 27) I also think that urban farming and hydroponics in particular have great potential to localize and make more efficient our food systems.

I disagree, however, with his assertions that, first, extra-urban agriculture can be shifted wholesale into cities, and second, that if such a shift were to occur, all farmland would revert back to a natural state. Both assertions seem naive at best to me, in light of population and land-de-

velopment trends. I also find much concern in his faith in human ability to create systems that are entirely controllable. It seems to me that, if anything, the history of humanity's attempts to control nature point directly at our inability to do so.

This book offers a mega-scale version of urban farming, and while I don't find much comfort in his segregationist land ethic or utopian hubris, I do think that on a more reasonable scale urban farming in the style he presents is certainly capable of stabilizing a far-flung food system, strengthening a community, and stimulating a local economy.

10. Doron, Gil. "Urban Agriculture: Small, Medium, Large." Architectural Design (2005) 75:3

This article, in an issue of *Architectural Design* dedicated to food, essentially explains that urban agriculture exists in most cities already, at one level or another. There are varied reasons behind these urban gardens, split mostly along developed and developing countries. In developing countries, urban farms and gardens are essential for feeding the urban population. Havana provides the example *par excellence*. In developed countries, on the other hand, urban agriculture is described also as a source of income for the entrepreneurial urban farmer.

Other benefits of urban farming are discussed, including environmental and social factors. The article concludes with a number of design opportunities, imagined schemes, and built precedents for intensive urban farming.

11. Erring, Bjørn, and Harald Høyem. "Urban Agriculture - En Fremtidsvisjon?" Byggekunst: the Norwegian review of architecture.2 (2007): 22-7. .

12. Fawcett-Tang, Roger, and William Owen. Mapping : An Illustrated Guide to Graphic Navigational Systems. Mies, Switzerland ; Hove: RotoVision, 2002.

13. Feagan, Robert. "The place of food: mapping out the 'local' in local food systems." Progress in Human Geography (2007) 31:1

The article directly addresses what local means in food system discussions, from how the length of the food chain matters, to what food shed means, to *terroir* and community. Place and local are also studied in the context of modern and post-modern placelessnesses and new regionalist models.

One important point he makes is that "the local is critically inset within larger-scale spaces nested in diverse ways out to the global level." (p 35)

Overall, this is a very interesting piece that raises many issues around what it means to be local in a highly connected global system.

14. Flisram, Greg. "A Serious Flirt with Dirt: Urban farming makes a comeback". Planning 75.8 (2009): 8-13.

As a brief article in a mainstream planning journal, the softness of the writing and lack of references prevent this piece from adding to my

academic reference list. However, as a picture of current trends in urban farming, the article provides both a useful cross-section of the movement and a selection of specific efforts in the development of urban farms and local food.

15. “Food and the Shape of Cities” <http://urbanomnibus.net/category/unseen-machine/>

This interview with the founders of The Foodprint Project, Nicola Twilley and Sarah Rich, addresses the issues and ideas behind the project itself. Twilley and Rich see food as a powerful way to connect disparate ideas across multiple disciplines, and were inspired by the writings of Carolyn Steele. “If you design for food and food systems, you will inevitably address all considerations needed to create a sustainable, workable community,” says Twilley.

The perspectives of these two writers occupy an important place in the contemporary dialogue about food, city, and design. Their multiple projects showcase their commitment, creativity, and on-the-ground knowledge in this area.

They reference the importance of infrastructures, mappings, spatial intelligence, and the potential contributions of architects to the pursuit of healthy food systems.

16. Francis, Mark. Village homes : a community by design. Washington DC: Island Press, 2003.

This book presents a case study of a planned sustainable community in Davis CA. Written decades after the development, the book offers a useful retrospective on the design and the design process. Recommendations are made for both physical design as well as for community engagement. Francis also offers what appears to be honest self-critique. Overall, the book is not terribly interesting to me or strictly relevant to my work, but a few of the physical design strategies could be useful, especially regarding the integration of productive landscapes into a residential environment.

17. Halweil, Brian, and Prugh, Thomas, ed. “Home Grown: the case for local food in a global market.” *Worldwatch Paper* 163, Nov 2002.

An in-depth account of local food systems, as well as detailed and objective information on the mainstream, globalized food system. A clear case is presented for how local food may move forward in this situation. Very useful discussions are included that focus on world food trade, food deserts, farmers as entrepreneurs, and rebuilding local foodsheds. Important resource on food systems generally, and on the challenges in building and maintaining local ones.

18. Giseke, Undine, Christoph Kasper, and Silvia Martin-Han. “Mega-Urban Open Space: A Joint German-Moroccan Research Project is Exploring New Forms of Urban Agriculture which could Offer a Solution for Open Space Provision in the Mega-Cities of Tomorrow.” .

19. Hauck-Lawson, Annie, and Jonathan Deutsch. Gastropolis : Food and New York City. New York: Columbia University Press, 2009.

This book focuses on the landscape of food in New York City, and while interesting doesn't offer a great deal of material to my study. Of particular interest, though, is a concept that the authors introduce called 'The Food Voice.' This concept states that what people choose to eat says a great deal about who they are. "Often, the food voice expresses what the spoken voice struggles to articulate." (p xiv) If part of my study includes investigation of place and community, this concept may be a good entry point in understanding local human experience.

20. Hill, Holly. (2008) Food Miles: Background and marketing. Retrieved from attra.ncat.org/attra-pub/PDF/foodmiles.pdf.

This is a useful article describing how food miles are calculated, and discussing energy use and transportation involved with the US food industry.

21. Hou, Jeffrey, Julie Johnson, and Laura Lawson. Greening Cities, Growing Communities : Learning from Seattle's Urban Community Gardens. Washington, D.C.: Landscape Architecture Foundation in association with University of Washington Press, 2009.

22. Infrastructure as Architecture. 2010. (citation pending library information)

23. Johnson, Lorraine. City Farmer. : Adventures in Growing Urban Food. D&M Publishers Incorporated.

Written primarily as a mainstream introduction to the history and potential of urban gardening and food production, the most useful sections of this book focus on the cultural and community benefits of community gardens, and on understanding the connections between ourselves and our food.

There is an interesting discussion of Detroit's increasingly agricultural nature, and Johnson has also included a small number of general statistics about urban food growing in the US that should be helpful. Additionally, the fact that the book has just been published makes it potentially more relevant.

24. Karantininis, Kostas, and Jerker Nilsson. Vertical Markets and Cooperative Hierarchies : The Role of Cooperatives in the Agri-Food Industry. Dordrecht: Springer, 2007.

25. Kurawila, Matthai. (2011, May 9). Oakland urban farming prompts plan to redo rules. *SFGate.com*. Retrieved from <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2011/05/09/BA701J7405.DTL>

Very current article expressing both the way in which zoning regulations hinder urban farming initiatives, and the general attitude of Oakland's planners to try and accommodate urban agriculture in appropriate ways. The sense is that city planners realize the value of local foods and are encouraging its development.

26. Lyle, John Tillman. Design for Human Ecosystems: Landscape, Land Use and Natural resources. Washington DC: Island Press, 1999.

Parts of this book will be useful as secondary resource material, especially as meta-design investigation. Primarily geared towards landscape architecture and its modes of problem definition, much of the book, while useful as an ecological refresher, won't have great impact on my work.

Part 2 of the book, however, 'Design Processes and Methods,' will be worth referring to as analysis of systems approaches and decision theory approaches to design. The stages of inception, precision, and generalization are discussed, and provide me with a novel way of conceptualizing the design process.

27. Lyson, Thomas A. Civic Agriculture : Reconnecting Farm, Food, and Community. Medford, Mass.; Lebanon, NH: Tufts University Press; University Press of New England, 2004.

Lyson examines civic agriculture as a counter-trend to American industrialization and globalization. Civic agriculture "references the emergence and growth of community-based agriculture and food production activities that not only meet consumer demands for fresh, safe, and locally-produced foods but create jobs, encourage entrepreneurship, and strengthen community identity." (p1)

He discusses the factors that led to corporate, global American agricultural practices, and the implications of a global food system. From this point he moves into an in-depth study of civic agriculture, including policy, theory, economic and political aspects of the topic.

Good baseline comparisons between conventional and 'civic' agriculture. Excellent annotated notes.

It is a recent work that has much relevance for my study.

28. Martinez, Steve et.al. Local Food Systems: Concepts, impacts, and issues, ERR 97, U.S. Department of Agriculture, Economic Research Service, May 2010.

This meta-analysis provides a comprehensive overview of local food systems. It has answered many of my questions about local food. I see it as one of my most important resources. It tries to define local food, describes local food suppliers and demand, and explains the current thinking on the benefits of local food. The level of scholarship and the quantity of references are both high.

29. Mathur, Anuradha, and Dilip da Cunha. Deccan Traverses : The Making of Bangalore's Terrain. New Delhi: Rupa, 2006.

30. Mathur, Anuradha, and Dilip da Cunha. Mississippi Floods. New Haven: Yale University Press, 2001.

This fascinating project has nothing to do with food systems directly. What is on offer, however, is a method of research and analysis that relies on open-ended gathering of information on a complex system,



coupled with a representational style that could be categorized within James Corners' concept of *eidetic landscapes*, in which drawings and maps become dynamic studies of visual, social, and sensory phenomena. These drawings become the fields in which theories are discovered and evaluated.

I imagine the methods presented here will expand the range of my questioning as well as the range of my interpretative tools.

The researchers' method seems to be based upon a habit of having "stumbled upon sites and followed leads." This suggests to me a deep acceptance of the subject, a willingness to follow curiosity and intuition, and the possibility of becoming lost in the study of a place at close range. As a research method it will be very instructive.

As a graphic and representational example, this book and the others by Mathur and da Cunha are incredibly inspiring and beautiful.

31. Mathur, Anuradha, Dilip da Cunha, and National Gallery of Modern Art. Soak : Mumbai in an Estuary. New Delhi: Rupa & Co., 2009.

32. Maye, Damian, Lewis Holloway, and Moya Kneafsey. Alternative Food Geographies : Representation and Practice. 1st ed. Amsterdam ; Oxford: Elsevier, 2007.

33. Merrigan, Kathleen 1959- (Kathleen Ann), and Kimberley Hodgson. "Where Food Planning and Health Intersect: Welcome to the Next Big Trend." Planning 75.8 (2009): 8-13. .

34. Mukai, Rachel. A Green Opportunity : How Community Gardens can Contribute to a Sustainable Urban Food System., 2009.

The primary research question for this final project in Landscape Architecture reads: "How can a landscape architect contribute to enhanced food security through a sustainable urban food system?" The research portion of this project has much similarity to my own, and I am grateful to have this work to use as a guide and foundation, and to be able to build off of work completed by another College of Design student.

Her research uses the issue of food security as a central argument for local food movements, and expands from there to study sustainability and structures of local food systems. There is a good discussion of the differences between conventional and sustainable agricultural practices, and analysis of a four-stage food system that includes production, distribution, consumption, and waste. She then outlines the benefits of emplacing sustainable agricultural strategies within a local context. Finally, urban issues and community gardens are explored, both through literature review and case study. Three successful community gardens in the United States, including SEEDS of Durham, comprise her case studies.

In general, I find the work clear and well-reasoned. A few strong diagrams stand out, as do her discussions of sustainability.

35. Newman, Lenore. "Extreme Local Food: Two case studies in assisted urban small plot intensive agriculture." Environments 36.1(2008).

Two very useful case studies are presented. Located in Portland OR and Vancouver BC, these are small urban farmers that farm multiple small plots, often on other people's land. The arrangement is compelling, and the conclusions suggest a wide range of variants and geographical locations would be possible. The background information on local food systems and on what Newman calls 'extreme local food' is strong. Very useful introduction.

36. Nordahl, Darrin, et al. "Public Produce: The New Urban Agriculture, by Darrin Nordahl [and] Greening Cities, Growing Communities: Learning from Seattle's Urban Community Gardens, by Jeffrey Hou, Julie M. Johnson, Laura J. Lawson [Book Review]." Landscape architecture 100.4 (2010): 128. .

37. Orr, David. Ecological Literacy: Education and the transition to a post-modern world. Albany: State University of New York Press, 1992.

I was introduced to this book as an undergrad, and it has been very useful to me. The book's thesis is that the US is experiencing a loss of connection to the natural world, and that we are losing our collective ecological literacy. It is geared towards education and sustainability, presenting an ethic of inhabiting the shared globe. He includes an interesting section on sustainable agriculture, forecasting issues that are still pressing today.

38. Pollan, Michael. In Defense of Food : An Eater's Manifesto. New York: Penguin Press, 2008.

39. Raja, Samina, Changxing Ma, and Pavan Yadav. "Beyond Food Deserts: Measuring and Mapping Racial Disparities in Neighborhood Food Environments." Journal of planning education and research 27.4 (2008): 469-82. .

40. Rich, Sarah. "Urban Agtivist: Cultivating an Urban Agroecology" <http://www.ediblecommunities.com/sanfrancisco/index.php?/Issue-21/urban-activist-cultivating-an-urban-agroecology.html>

Three case studies of small-scale entrepreneurs involved with urban agriculture in San Francisco. The cases include a weed-eating goat herd, a collector of urban fruit, and a micro-scale herb and lettuce farm.

41. Rich, Sarah. "Transportation, Food Security and Local Economies" <http://www.worldchanging.com/archives/006119.html>

The article presents the problem of low-income urban communities' lack of access to healthy food choices, and several recent initiatives aimed at bridging the gaps. The concern, essentially, is that supermarket chains have few incentives to locate stores in these communities, and community members have proportionally fewer resources for traveling to and from distant grocery stores.

The initiatives discussed here all provide one sort of transportation solution or another. The mobile market truck of the People's Grocery



in Oakland is described, as well as a New Orleans mobile store plan. The development of neighborhood grocery stores could also help alleviate the problem of urban food deserts.

42. Shigley, Paul. "When Access is the Issue: What Cities are Doing to Get Healthy Food into Underserved Neighborhoods." Planning 75.8 (2009): 26-31.

The central question of this article ties directly to a major area of interest for me. The discussion focuses on planning efforts, naturally, but in framing the problem the article makes the underlying economic, policy, and health issues clear.

A number of suggestions for alleviating the food desert problem are suggested, mostly based on initiatives already underway in a few large cities. Of note, cities are experimenting with incentives for small-footprint grocery stores, restricting the number of fast food restaurants per area, forcing liquor and tobacco "convenience stores" to carry fresh food, and re-zoning that directly addresses the ability of diverse food outlets to locate in mixed and residential districts.

43. Short, Anne, Julie Guthman, and Samuel Raskin. "Food Deserts, Oases, Or Mirages? Small Markets and Community Food Security in the San Francisco Bay Area." Journal of planning education and research 26.3 (2007): 352-64. .

44. Steel, Carolyn. Hungry City : How Food Shapes our Lives. London: Chatto & Windus, 2008.

Written for a mainstream audience, this architect builds a historically-contextualized account of what it takes to feed a modern city of today; London, in this case. Sections Steele calls 'The Land' and 'Sitopia' are most interesting.

In general, this book explains a good deal of how we are where are, and why our global food system operates the way it does. As she wraps the book up, she asks, "So if we were to design a city through food, what might it be like?" This question, I believe, is at the center of my own investigations, neatly summing up the opportunities and constraints of my project, in which food and design are interwoven.

45. Stegall, Nathan. "Designing for Sustainability: A Philosophy for Ecologically Intentional Design." MIT Design Issues (2006) 22:2

The article offers a grounding in design philosophy that preferences intentional design decisions made by competent designers in response to local conditions. Stegall proposes a "philosophy of purpose." (p59) Design solutions must not only function well but also *tell* about their making and how they fit into an ecologically responsible system. Stegall concludes by reducing the fundamental skill of "designing for sustainability" (p63) to ecological literacy, the idea popularized by David Orr.

46. Teig, E., et al. "Collective Efficacy in Denver Colorado: Strengthening neighborhoods and health through community gardens." Health and

Place (2009).

Based on a 69-case interview process of Denver Community gardeners, the article concludes that “gardens serve as a positive social influence within neighborhoods and also as a catalyst for other positive place-based social dynamics.” They also point out increased socialization between otherwise exclusive groups and the development of collective efficacy (“the link between mutual trust and a shared willingness to intervene for the common good of the neighborhood” (Sampson et al., 1997).

The article will provide me with a credible basis for framing the positive aspects of community gardening, and not limited to social factors. The opening paragraph of the introduction summarizes and cites an incredibly wide range of observed benefits, from environmental to personal health.

47. van Berkel, Ben, and Caroline Bos. UN Studio : Design Models, Architecture, Urbanism, Infrastructure. New York: Rizzoli, 2006.

“It is simply not possible to foresee and register in your computer all of the parameters that you will be working with as you engage in the long and complex process of architecture . . . Architects must learn to apply more intelligence and strategic planning to design.” pp14-15

“. . . focus is on models that are able to generate whole series of projects, models that are designed to be instrumentalized directly as they contain in their very cores the enduring ingredients of architecture.” p21

While this monograph uses ‘model’ to generally refer to mathematical and parametric types (topologies), the general language quoted above is easily appropriated to my work, with their meaning of ‘model’ replaced by mine, in which a model refers to a process of research and design generation. My hope in this independent study is to test a prototype of research and design that, ultimately, may inform my early professional career. As such, UN Studio’s position helps to stabilize mine.

48. Viljoen, Andre ed. CPULs: Continuous Productive Urban Landscapes. Oxford: Architectural Press, 2005.

The thesis of this book, that sustainable urban food production must return to a model in which production takes place in intensively farmed continuous green networks of productive and recreational landscapes, offers a powerful and coherent vision for local food systems.

A CPUL is a Continuous Productive Urban Landscape, “open landscapes productive in economical and sociological and environmental terms.” They are imagined as frameworks for flow of many different urban actors and energies. They are opportunistic, meant to work among and alongside existing fabric. Primarily CPULs are about “urban food growing and local food consumption.”

The book and its case studies focus primarily on Anglo and London conditions, representing a wide range of project types and scales. The book opens with a list of definitions and terms that will be useful reference points for discussion of food system components.

Throughout, there is a welcome inclusion of graphs and statistics. Sections on food miles, economics of urban agriculture, and planning

for CPULs in contemporary open space all bring a rigorous approach to research.

49. Wall, Alex. "Programming the Urban Surface", chapter 15 in: Corner, James, and Alan Balfour. Recovering Landscape : Essays in Contemporary Landscape Architecture. New York, NY: Princeton Architectural Press, 1999. (citation needs formatting)

As I become interested in the potential for urban food system projects, the ideas presented by Wall provide a lens for imagining *landscape* as a conceptual field or surface upon which a wide range of dynamic operations form and re-form the city. Of particular interest for me is Wall's inclusion of architectural thinking as part of his evidence, citing the work of Gruen, SuperStudio, and OMA. This demonstration of parallel thinking between landscape architecture and architecture lends my investigation greater potential latitude as both programmatic and formal project.

In defining *landscape* for the chapter, Wall refers to "the extensive and inclusive ground-plane of the city, to the 'field' that accommodates buildings, roads, utilities, open spaces, neighborhoods, and natural habitats." p. 233 In thinking about support for urban agriculture, I hope to, at the least, maintain an informed position relative to this ground-plane upon which the program of the city exists and evolves.

50. Ward, Andrea. "Urban Agriculture: Asphalt Garden [United States]." GreenSource: the magazine of sustainable design 5.3 (2010): 90,93,95-97.

Section J: Selected Food System Project Descriptions

I present these examples of food system operations as a way to demonstrate a breadth of actors and operations working within food systems today. It is not meant to be an exhaustive collection, but instead a starting point in exploring the dense network of food today.



Polyface Farm Swoope VA

“Polyface, Inc. is a family owned, multi-generational, pasture-based, beyond organic, local-market farm and informational outreach in Virginia’s Shenandoah Valley.” The farm produces: “Salad Bar Beef, Pigaerator Pork, Pastured Poultry (Eggs, Broilers, Turkeys), Forage-Based Rabbits, Forestry Products. We are in the redemption business: healing the land, healing the food, healing the economy, and healing the culture. Writing, speaking, and farm tours offer various message venues.”

The Salatins started this boundary-pushing organic farm in the Shenandoah Valley in early 1960’s. Since then the farm has become a nationally-known leader in environmentally sustainable practice.

material from: <http://www.polyfacefarms.com/>

“In his wide, webbed suspenders and used service-station shirt, Salatin is part Louis Bromfield and part John the Baptist. And like Bromfield, the mid-20th-century novelist and farmer who was bold enough to doubt “that the impulse of our time toward regimentation, centralization, mechanization and industrialism necessarily represented progress,” he is a rebel – and an evangelist – at heart. He is also a red-blooded, robust rebuttal to the notion that the sustainable-food movement is a preoccupation of a pampered and unrealistic elite.”

Joel Salatin is an entrepreneur, speaker, inventor, environmentalist, and farmer. The Salatins utilize numerous closed-loop nutrient cycles driven by rich pasture, animal waste compost, and animal action to push the ability of their land to produce incredibly sustainable, “beyond organic” food.

material from: <http://www.nytimes.com/2005/05/01/style/tmagazine/pasture.html>



fig 1



fig 2: JOEL SALATIN ADDRESSES VISITORS
fig 3: HEALTHY HOGS

Growing Power Milwaukee WI

Growing Power is the creation of Will Allen, urban farmer and former NBA basketball player. The story of the farm has resonated within the local food movement, and he is perhaps the best known person within the movement. The multi-layered program of the organization and its high level of success makes it an important point of study in urban food systems. The intensity of production, the attention given to complete resource loops, and the explicit focus on community food access and equity provide positive examples for any urban food initiative.

From the Growing Power website:

“Growing Power is a national nonprofit organization and land trust supporting people from diverse backgrounds, and the environments in which they live, by helping to provide equal access to healthy, high-quality, safe and affordable food for people in all communities. Growing Power implements this mission by providing hands-on training, on-the-ground demonstration, outreach and technical assistance through the development of Community Food Systems that help people grow, process, market and distribute food in a sustainable manner.”

“In 1993, Growing Power was an organization with teens who needed a place to work. Will Allen was a farmer with land. Will designed a program that offered teens an opportunity to work at his store and renovate the greenhouses to grow food for their community. What started as a simple partnership to change the landscape of the north side of Milwaukee has blossomed into a national and global commitment to sustainable food systems. Since its inception, Growing Power has served as a “living museum” or “idea factory” for the young, the elderly, farmers, producers, and other professionals ranging from USDA personnel to urban planners. Training areas include the following: acid-digestion, anaerobic digestion for food waste, bio-phyto remediation and soil health, aquaculture closed-loop systems, vermiculture, small and large scale composting, urban agriculture, permaculture, food distribution, marketing, value-added product development, youth education, community engagement, participatory leadership development, and project planning.”



fig 4



fig 5: WILL ALLEN IN GREENHOUSE

Viet Village Urban Farm New Orleans, Louisiana

“What a terrific urban farm—we’ll be seeing many more projects like this in the future. The landscape architect has evoked the strong tradition of gardening within the Vietnamese community and will strengthen the cultural identity of this neighborhood.”

— ASLA 2008 Professional Awards Jury Comments

This urban farm was developed post-Hurricane Katrina in response to the destruction of many urban gardens in the Viet Village community. Prior to Katrina, ad hoc gardens existed throughout the community that served the neighborhood with the kinds of produce typical of Vietnamese cooking but difficult to find in a US grocery. “The farm, located on 28-acres in the heart of the community, will be a combination of small-plot gardening for family consumption, larger commercial plots focused on providing food for local restaurants and grocery stores in New Orleans, and a livestock area for raising chickens and goats in the traditional Vietnamese way. The proposed market on the site will provide a location for the individual farmers to supplement their income as well as serve as a central meeting space for the larger Vietnamese community along the Gulf Coast.” Through a series of public meetings with the local community the project goals and relative size of the major program areas was established. From these overarching goals a strategy for the design of the site was established. The design strategy was based on the idea that the site must be developed as a series of fully functional sub-projects that could be funded incrementally, yet come together to create a comprehensive system to deal with the programmatic and water/soil issues.

from: <http://www.asla.org/awards/2008/08winners/411.html>

“Green Jobs Connection

The Viet Village Urban Farm goes hand-in-hand with green economic enterprise. Our combination of gardens, aquaponics, animal husbandry, renewable energy sources, food services, and environmental education will lend itself rich partnerships with our local schools, markets, restaurants, and chefs. This strategy will integrate business development and job placement to promote three inter-related pathways to higher incomes: creation of a new green micro-enterprise owned and operated by a low-income individual; expansion of existing small businesses to create employment for low-income families; and job placement with expanding local green businesses.”

from: <http://www.mqvncdc.org/page.php?id=18>



fig 6

Wandsworth Community Garden Wandsworth, UK

As a counterpoint to the established model of allotment gardens found across England, this garden is collectively organized and maintained. It's highly visible location makes it a noteworthy example of an expressive community landscape that brings together food production, outreach, and social opportunity.

As of March 2011, the group is planting into it's first growing season. The garden's creation has taken place over three years, beginning with difficult negotiations with the city council, a tedious process of site selection, and development of a garden plan. The garden's site is partly shaded by a high railroad embankment to the south, but the high amount of pedestrian traffic through the site (rail station is directly adjacent) suggests a strong opportunity to develop public outreach. Also interesting is that a McDonald's store faces the site across a busy street, setting up an ironic dialogue between corporate, processed food and local, community-grown food.

The founder of the garden hopes to develop future sites around the city, seeking out visible plots that would allow the group to continue its community-building mission.

Challenges that face the garden, still in just its first planting season, are to determine with more clarity how food will be distributed among its contributing members, and how to secure its produce or make it not attractive to passersby. The high visibility and public-ness of the project also add a measure of vulnerability to the garden, and the implications of this condition are yet to be experienced.



fig 7



fig 8



fig 9

Calthorpe Project London, UK

The Calthorpe Project offers an example of a local community organization that makes food growing and education a core component in its mission.

In its 27th year, this project is a strong community asset, geared towards a multitude of community services. In terms of food, the Calthorpe Project conducts classes in cooking, nutrition, and gardening. The gardening classes are supported by a small greenhouse and raised bed plots on site. The Project has also partnered with the University College London, just across the street, in food-focused educational programs. In one particularly interesting food system link, the Project sells bags of lettuce and herbs to a local volunteer-run grocery store only blocks away, the People's Supermarket.

The physical space of the site is occupied by playgrounds, ornamental gardens with seating and play areas, a small soccer court, the food gardening areas, and a one-story building that houses classrooms, offices, and support spaces. A broad deck extends from the rear of the building into the garden.

At the time of my visit, groups of teenagers were hanging around at various places in the gardens, suggesting a cross-over of program and visibilities that could have positive impact on a city kids' understanding of food.

From a brochure: "Producing food in the city gives city residents access to fresh products, and the opportunity to take exercise, get fresh air and improve their diets. Our growing space offers opportunities to socialize, decreasing isolation, and leading to improved confidence and self-esteem."



fig 10



fig 11

Vauxhall City Farm London, UK

The usefulness of this example lies in the fact that it provides an expressive educational service as open space within a low-rise city district.

This farm operates primarily as an educational asset to the community, while also providing work experience and job training to local youth. The farm does not grow food (except for the occasional batch of eggs sold at the farm), but cares for a wide range of livestock and fowl, as well as offering riding lessons on its eight horses. The farm infrastructure itself is a haphazard collection of formal and informal structures. Some buildings are simple and utilitarian, some are designed for easy interaction between children and animals, and others (such as the cob pavilion) are teaching tools in themselves. The farm occupies one edge of a large open space within a five-minute walk of Vauxhall tube station.

Adjacent to the farm itself are a small number of allotment gardens. It seems as though the allotment gardens make use of animal waste and compost from the farm for fertilizer and soil health. On-site closed loop waste management, while common-sense, should be noted as an important asset for these allotment gardens and a sustainable ecological decision.



fig 12



fig 13



fig 14



fig 15

Piedmont Food and Agricultural Processing Center Hillsborough, NC

This \$1.4 million food business incubation facility is scheduled to open in June 2011, and will provide rental kitchen and storage space for the development of new food businesses. In addition to kitchen and storage spaces, the facility offers a number of rental offices and professional facilities, food safety and handling certification courses, fully inspected kitchens, and general assistance with professional advancement and growth.

The facility is designed to support new businesses within a 75-mile radius. Kitchens are available for not-for-profit events and organizations as well as business incubation.

The facility represents a significant opportunity in the development of resilient local food systems. By allowing farmers and others to add value to locally-grown produce, the food production components of the food system are able to capture more dollars, adding stability and capital to the system. Additional stability will be provided by increasing the capital generated and held by new food businesses in the area.



fig 16: PFAP PLAN

Grove Farm
Great Bentley, Essex, UK
(interviewed at Burrough Market)

While visiting Burrough Market, I had the opportunity to meet and talk with a farmer selling her farm's produce at the market. From Grove Farm, southeast of London, she was selling eggs, chicken, beef and lamb. All her animals are raised humanely, grass-fed and free-range. I asked her about the farm, the market, and the outlook for farms like hers in England.

She seemed to regret what she saw as the increasing tourist personality of Burrough Market, and didn't feel as though locals visited the market often anymore for actual grocery shopping, and her business on market days here were not especially lucrative. She worried that in her area of the country the number of small commercial slaughterhouses was dwindling, and her ability to get animals to slaughter would become more expensive if further away.

Her biggest concern, though, was the extent to which supermarkets had degraded the market culture of small town England. In her experience, many people were choosing to do the bulk of their shopping at supermarkets, hurting not only small markets and businesses, but also the small farms that traditionally supplied them. The supermarkets have been supporting large-scale agriculture that is able to undercut prices at traditional farms and markets.



fig 17

Durham Farmer's Market Durham, NC

Most of the following information is taken from an in-person interview with Erin Kauffmann, market manager:

The Durham Farmers Market is open Wednesday afternoons and Saturday mornings, year-round. 63 vendors are part of the market, with 45-50 attending any given Saturday morning market in summer, the busiest season. Farmers and vendors within a 70-mile radius of Durham are eligible for membership, a radius based on the local context of density and quality of farming areas. The growth of the market has been slow and deliberate, based on advisory board decisions and customer feedback.

In addition to the direct sales program, the market hosts other activities such as cooking demonstrations, cookbook signings, kids cooking classes, food truck fairs, live music, and local chef cook-offs

Transportation to the market is primarily by private car, with some bus connections available nearby.

Kauffmann believes that the market could do a better job of building a customer base that mirrors Durham's population. She sees a need for reaching out to the African-American and Hispanic populations in the area. With the demographic connection between minority groups and poverty in Durham, Kaufmann points out that the market does not currently accept food stamps or SNAP benefits, and that this form of payment could make fresh local food available for low-income Durham residents, helping to attract a more representational cross-section of Durham's population to the market.



fig 18



fig 19



fig 20

Burrough Market London, UK

Neslted underneath a 'Y' of overhead rail tracks, Burrough Market houses a wide range of food stores and temporary stalls. Operating primarily on Thursday, Friday, and Saturday, the market bustles with shoppers, browsers, and tourists.

The main issues that, to me, create the attraction are the wide range and typically high quality of food available, the sheer number of food opportunities, and the physical form of the market halls. Certainly the crowds of people at midday on Friday help create an aspect of spectacle and event, but I'm not sure that, in the end, the crowds are the important thing.

The attraction and success of the physical market derive from its simultaneous sheltering and transparent aspects. Heavy stone walls and piers support the tracks above, and the market sapce winds in and through these. In between spaces, however, are covered by a glass roof and slender cast-iron fretwork. In addition, there are no long views that allow the shopper to remain easily oriented; in fact, the space wanders and curves, inviting exploration and lingering, rewarding curiosity with a different kind of cheese, or ten kinds of mushrooms.

There is a local focus in parts of the market, but I would not say that this is a baseline. Meat, fish, and pro-duce are sold from all over Europe, certainly, if not further afield.



fig 21



fig 22



fig 23

Los Primos Grocery Durham, NC

This grocery focuses on Latino products, and has a large meat department with unusual and hard to find cuts of meat. From a store visit, it was hard to distinguish whether local produce was offered, my guess is that it is not but further research is needed.

The building was constructed as an A+P supermarket in the 1950's, and was part of a trend towards larger car-served supermarkets that pushed smaller, neighborhood grocers out of business. This trend has continued, however, and the newest wave of large supermarkets and supercenters have made groceries like this less common.

"The wave of supermarkets that drove the smaller stores out of business eventually crashed and burned themselves, giving way to even more humongous stores out on the periphery of town."

-<http://endangereddurham.blogspot.com>

Located at the edge of East Durham, on Alston Ave, the store is served directly by the city bus service. As my study area begins to coalesce, this grocery finds itself at the edge of my study, perhaps representing an oasis or boundary to a possible food desert in East Durham. As a smaller, in-town grocery, Los Primos offers an increasingly rare urban amenity, and the full range of urban connections to this store may be useful to study further.



fig 24

Most of the following information is taken from an in-person interview with Wendy Noell, grocery manager:

The TROSA grocery store opened last in 2010 as the sixth business operated as part of TROSA's vocational training component of their residential rehabilitation program. TROSA was initially asked to open a grocery store by the owner of a triplex space at the corner of North Driver and East Angier streets, in East Durham. The owner planned to open a new diner in one of his commercial spaces, and believed a grocery store in proximity would help stabilize the redevelopment of this mostly vacant commercial district. The City of Durham became involved, as the addition of a grocery store to this area coincided with their own planning goals to alleviate the food desert conditions in East Durham.

Noell said that there are somewhere between dozens and several hundred customers that depend on TROSA Grocery, as they either walk or depend on rides to reach the store. Aside from the Grocery, 6 mini-marts in the area are in walking distance but do not provide a wide range of healthy, fresh food. The Grocery asserts itself as a significant food option in this underserved neighborhood, but the shopping and eating patterns of the neighborhood have yet to change enough to fully support the business; as of yet the Grocery has remained subsidized by the resources of TROSA itself.

The screenshot shows the TROSA website with the following elements:

- Header: "Each One, Teach One..." on the left, "Donate | Site Map" on the right, and the TROSA logo (Triangle Residential Options for Substance Abusers, Inc.) in the center.
- Navigation Menu: HOME, PROGRAM, **BUSINESSES**, SUPPORT, ABOUT, CONTACT.
- Testimonial: "We have accepted TROSA's challenge. And that is to become responsible, working individuals, living clean and sober lives in a respectable manner."
- Photo: Four staff members standing in a grocery store aisle.
- Left Sidebar: TROSA BUSINESSES menu with items: GENERAL INFORMATION, TROSA MOVING, HOLIDAY SALES, LAWN CARE & MAINTENANCE, BUSINESS PARTNERSHIPS/ CONTRACT LABOR, FRAME SHOP, **TROSA GROCERY**, TROSA FURNITURE, CUSTOMER TESTIMONIALS.
- Main Content: **TROSA GROCERY** section with breadcrumb "Home > TROSA Businesses > TROSA GROCERY" and the announcement: "TROSA Grocery's Grand Opening celebration: Thursday, May 13, 2010 at 11:30 am".

fig 25

People's Supermarket London, UK

This supermarket captured my attention for a couple reasons: they sell lettuces from the Calthorpe Project (only a few blocks away), and they are staffed entirely by member volunteers. It is a co-op market, and the membership terms include four hours of store work per week.

While their stock included quite a bit of mainstream product, I did notice quite a bit of local produce. The produce that was local was displayed prominently and clearly labeled. Additionally, I was impressed by their branding strategy and fresh, informative store signs and messages.

As a component in a healthy food system, the store provides the opportunity for community and sharing of food knowledge, a retail outlet for local, urban-grown food, and in its walkable setting it provides a food store within a dense urban neighborhood.



fig 26



fig 27



fig 28

People's Grocery West Oakland, CA

In response to joblessness and chronic disease rates in Oakland, the People's Grocery has set itself the mission: "to build a local food system that improves the health and economy of West Oakland. . . Our work involves increasing local supply of fresh foods; advocating for living-wage business and job opportunities; and developing strong relationships and community leadership."

Through innovation approaches and initiatives, with the issue of food justice as a guiding principle, the People's Grocery has received state and national attention for their efforts.

Their programs include a collection of urban gardens and greenhouses, and micro-enterprises associated with these. They offer an urban agriculture and food justice "allyship": a 3-month training program in urban farming. They organize frequent community celebrations that provide education into food justice and healthy eating in a celebratory food-focused event. A modified CSA called the Grub Box is aimed at providing healthy food to low-income residents, on a weekly pickup schedule, as well as their "Wholesale Hook-Up," which allows bulk food purchases by residents at a minimum \$500 order. Their "Growing Justice Institute" creates events that bring local community together with national leaders and experts in urban gardening and food justice issues. Finally, health and nutrition demonstrations are offered at institutions and events throughout the community.



fig 29



fig 30



fig 31

ECO, founded 2004, is a distributor of wholesale organic produce grown on about 40 farms throughout NC (and the edges of VA and SC). Their distribution area includes about 100 customers from the Triad to the eastern edge of the Triangle. Their customers include groceries, restaurants, and buying clubs. The organization is farmer-owned, and while the initial capital was grant-funded, the business has been self-sustaining since year one.

The usefulness of this case lies in its powerful position as a node in the network of multiple food systems. Not only does ECO collect and then distribute food to and from a large number of food system actors, it also operates as a feedback mechanism within these systems. By maintaining close communication with its customers, ECO is able to provide information to farmers on market needs, helping farmers align their planting plans with demand, simultaneously strengthening the stability of the farmer and the quality and consistency of food reaching the customer. This information linkage is crucial to the adaptive health, the resiliency of a system.

Worth mentioning in relation to resiliency and important nodes in a system is the danger of a single node becoming too embedded, developing too high a degree of connectivity, thus creating a vulnerable spot in a system. In our interview, CEO Kronick explained that few, if any, of their farmers or customers worked exclusively with ECO. This suggests that while ECO serves an important function the local, organic food system, it functions in parallel to other entities and structures in the system, such as farmers markets and CSA's.

Other points made by Sandi Kronick during our interview: The demand for organic, local food is not being met. Kronick said that they are constantly looking for more farms to work with as a way to meet this growing consumer demand. Second, while typical financial measures for success apply to their business model, Kronick shared another measure for the success of her company. She felt that the experience of watching a farm continue within a family, passing down from one generation to the next, was powerful evidence that ECO worked. Finally, she made clear that one of the most important issues in her business is the assurance of quality control of produce through proper handling at all stages of the distribution chain. ECO, of course, has equipment and facilities to provide the necessary care, but for her farmers the ability to provide the same level of post-harvest care in handling (refrigerated trucks, cooler space, etc) at the farms can be a challenge.
source: phone interview with Sandi Kronick, March 18 2011.

WHO'S YOUR FARMER?

Tim and Nancy Bass
Sunburst Tomato Farm
[Full Profile](#)

Richard Ward
Ward Organic Farm
[Full Profile](#)

Herbie Cottle
Cottle Organics
[Full Profile](#)

Fred Miller
Hilltop Farms
[Full Profile](#)

Randy Massey
MMM Plant Farms
[Full Profile](#)

Charles Church
Watauga River Farm
[Full Profile](#)

John Rowland
R Farm
[Full Profile](#)

Frederick Inglis
Somerset Farm
[Full Profile](#)

John and Kathy Ogle
Hunting Creek Organics
[Full Profile](#)

Alan Souther
Rocking S Farms
[Full Profile](#)

Arlanda Spemore
Cane Creek Valley Farm
[Full Profile](#)

Michael Pinterfeld
Gladwell Farms
[Full Profile](#)

fig 32

eastern carolina organics
eco
your local farm to table connection
OUR FARMERS WHAT WE DO CROP CALENDAR GROW WITH ECO

NOW AVAILABLE

- [Sunburst Tomatoes](#)
- [Beauregard Sweet Potatoes](#)
- [Arugula](#)
- [Baby Collards](#)
- [Green Kale](#)
- [Lacinato Kale](#)
- [Green Cabbage](#)
- [Braising Mix](#)
- [Mustard Greens](#)
- [Covington Sweet Potatoes](#)
- [Turnips](#)
- [Goat Chevre Logs](#)
- [Rutabaga](#)

> see full calendar
To receive availability sheets by fax or email,
> contact Trace

GROP CALENDAR

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
APPLES												
ARUGULA												
ASPARAGUS												
BASIL												
BEANS												
BESTS												
BLUESBERRIES												
BOK CHOY												
BROCCOLI												
BRUSSEL SPROUTS												
CABBAGES												
CANTALOUPE												
CARROTS												
CELERY ROOT												
COLLARDS												
CUCUMBERS												
EGGPLANT												
FENNEL												
FIDS												
GARLIC												
HERBS												
HONEYDEW												
KALE												
KOHLEWASSER												
LETTUCES												
MUSCADINE GRAPE												
MUSTARD GREENS												
OKRA												
PEAS												
PEPPERS, BELL												
PEPPERS, HOT												
POTATOES												
POTATOES, SWEET												

fig 33

The Mobile Garden Project Chicago, IL

From the project website: “The mobile garden project is a one month art installation of a native plant garden onto a CTA flat train car with regular service. With the blessing of the CTA to move forward on this, noisivel-vet continues to search for a corporate partner to carry the contract to feature ideas of responsible materials, urban stewardship, and sustainability.”

This art project suggests a novel use of rail infrastructure, and caught my attention because of its compelling combination of expressive plantings, opportunistic design strategies, and mobile program. This combination has the ability to educate, stimulate discussion, and travel to areas that may otherwise be lacking in both.



fig 34

Philadelphia Action Manual

Philadelphia, PA

“The Action Manual is a call for strategic reuse of vacant lots, and a resource for communities, individuals, and policy makers interested in direct action to rehabilitate Philadelphia and its neighborhoods. We present new ideas for education, skill-sharing, farming and food security, recreation, arts, information, and energy, alongside best practice examples and resources for turning ideas into action. Many of these ideas have implications and can provide resources beyond the Philadelphia metropolitan area.”

-from the Action Manual website

Philadelphia currently has the highest per capita vacancy rate in the US; 40,000 vacant lots represent nearly 1000 acres of Philadelphia’s urban space. As a response to this crisis of vacancy, the City Parks Association launched an international design competition to generate ideas that re-imagine this vacant landscape. The ideas range from micro- to mega-scale, and with names like “Farmadelphia,” “Compost City,” and “Emergent Performative Landscape,” many of the ideas generated directly address the urban food system.

The significance to my work is the sheer number of precedent ideas for urban space and food systems. As I move closer to a defined program and site this website repository may be increasingly helpful as a source of inspiration.

edible city



fig 35



ACTION MANUAL FOR PHILADELPHIA'S URBAN VOIDS

[EXPLORE IDEAS](#)

[FIND RESOURCES](#)

[LEARN ABOUT US](#)

[SIGN UP](#) [LOG IN](#)

explore ideas

Recently Added

EASTWICK PARK
301 ISLAND AVENUE
PHILADELPHIA, PA

Eastwick Community Park

Philadelphia, PA

A patchwork of urban plant cultivation.

Emergent Performative Landscape

Philadelphia, PA

Phased tree production accommodates a new community space.

Eastwick Alleywalk

Philadelphia, PA

Creating corridors and connecting parks and the city.

Featured

Farmadelphia (Greenhouses)

Compost City

Ecological Reconfiguration

EXPLORE IDEAS

By Action

- Grow
- Water
- Power
- Play

By Scale

- Lots
- Lots of Lots
- Corridors

By City

- Philadelphia
- Philadelphia
- Philadelphia
- Philadelphia
- Philadelphia

fig 36



Section K: List of Illustrations

Section C

- fig 1 source: <http://www.nconemap.com>
- fig 2 source: <http://nccommunitygarden.ncsu.edu/gardens.html>
- fig 3 source: <http://www.ncfarmfresh.com/farmmarkets.asp>
- fig 4 source: <http://maps.google.com/>
- fig 5 source: <http://maps.google.com/>
- fig 6 source: <http://maps.google.com/>
- fig 7 original by author
- fig 8 source: <http://www.nconemap.com/>
- fig 9 source: <http://www.maps.google.com/>

Section D

- fig 1 source: City of Durham
- fig 2 author photo
- fig 3 author photo
- fig 4 source: City of Durham
- fig 5 source: <http://www.maps.google.com/>
- fig 6 source: <http://www.maps.google.com/>
- fig 7 source: <http://www.triangletransit.org/>
- fig 8 original by author
- fig 9 original by author
- fig 10 author photo
- fig 11 author photo
- fig 12 author photo
- fig 13 author photo
- fig 14 author photo
- fig 15 author photo
- fig 16 original by author
- fig 17 author photo
- fig 18 author photo

Section E

- fig 1 original by author
- fig 2 original by author
- fig 3 source: Hill, Holly. (2008) Food Miles: Background and marketing. Retrieved from attra.ncat.org/attra-pub/PDF/foodmiles.pdf.
- fig 4 source: ibid
- fig 5 source: ibid
- fig 6: source: ibid

Section F

All images original by author.

Section G

All images original by author.

Section H

All images original by author.

Section J

fig 1 source: <http://www.polyfacefarms.com/>
fig 2 source: ibid
fig 3 source: ibid
fig 4 source: <http://www.growingpower.org/>
fig 5 source: ibid
fig 6 source: <http://www.asla.org/awards/2008/08winners/>
fig 7 photo by author
fig 8 photo by author
fig 9 photo by author
fig 10 photo by author
fig 11 photo by author
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fig 15 photo by author
fig 16 source: <http://www.pfapnc.com>
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fig 23 photo by author
fig 24 source: <http://endangereddurham.blogspot.com/>
fig 25 source: <http://www.trosainc.org/>
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fig 29 source: <http://www.peoplesgrocery.org/>
fig 30 source: ibid
fig 31 source: ibid
fig 32 source: <http://www.easterncarolinaorganics.com/>
fig 33 source: ibid
fig 34 source: <http://themobilegarden.org/mobilegarden/welcome.html>
fig 35 source: <http://www.gfcactivatingland.org/>
fig 36 source: ibid







