

THE AGRARIAN CITY

A New Urban Experience with Food Production

JILL THOMPSON

Fall 2016 | Professor Wendy Redfield

Spring 2017 | Professor Tom Holloman

*“Cultivators of the earth are the most virtuous and
independent citizens.”*

THOMAS JEFFERSON | NOTES ON THE STATE OF VIRGINIA |
1781

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THESIS

Abstract

Thesis Statement

Essay



IMAGE 01 |



IMAGE 01 |

ABSTRACT |

We tend to think of cultivation of the natural world as one of two things urban or agrarian. The two seemingly different city and country have always been defined as two separate and opposite categories.

America, since its founding days, has been based upon the beliefs and ideals of Thomas Jefferson's agrarian society where "Those who labor in the earth are the chosen people of God." He believes that people are intrinsically "good" when they connect and work with the land. To him, both debt and factory work "could rob men of the economic autonomy essential for republican citizens." Unfortunately for Thomas Jefferson, as technology modernized, there was a large shift from an agricultural based economy to an industrial based economy.

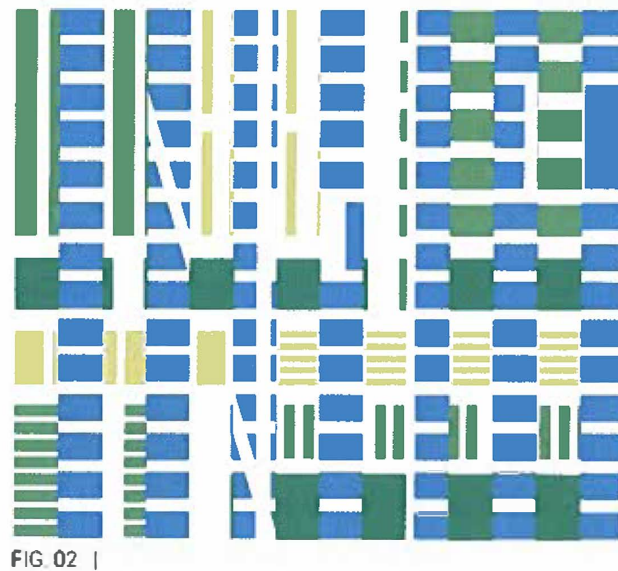
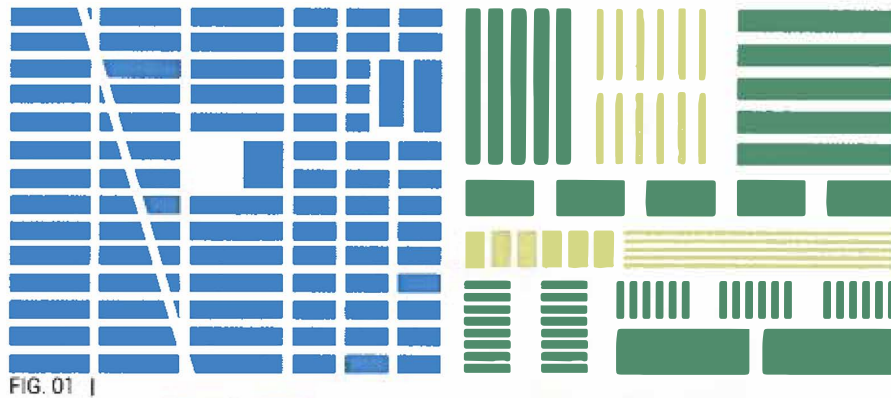
The current ideals and foundation of the United States are so far removed from Jefferson's agrarian society. Industrialization and technological advancements have pushed people to become disconnected from the land and the process through which we get and obtain our food. We must restore these fundamental principles by adapting them to our current needs in an urban setting.

Despite shifting far away from Jefferson's agrarian ideals, there have recently been many efforts to bring agriculture and landscape into the urban area; however, the application is generally solely through insertions into the existing urban form. This thesis will examine the relationship between agrarian and urban and how agricultural production can be a formative element of the physical structure of the urban experience. The resulting new urban experience will fundamentally improve the life of American cities, reconnecting urban consumers with their food sources.

THESIS STATEMENT |

FALL THESIS | Both urban and agricultural ordering systems must be emphasized when developing an urban environment creating a hybrid country-city model.

SPRING REVISED THESIS | A new ecological system must be developed in the urban region which emphasizes agriculture production as a formative element of the physical structure of the urban experience.



ESSAY INTRODUCTION |

Urban and agrarian have long been thought of as two distinct categories. They have consistently throughout history been pitted against each other as opposites. However recently, the intersection of these two concepts has been brought to the forefront of many discussions including in both the design and public health fields. Urban farming and agriculture has become a trendy interest with a lot written arguing for more sustainable methods in regards to general food practices, better public health, reduced carbon footprint, and enhanced biodiversity. On the other hand, according to the US Census Bureau from the 2010 Census, 80.7% of the population live in urban areas which has increased from 79% in 2000. (footnote needed - reuters). With more and more people living in urban areas, there is an increasing need for built space. Open space is a concept Americans gravitate towards much more so than Europeans yet through the development of American cities, green space has rarely been a priority. And when landscape does become a priority for cities, it often is just placed into the existing structure as patchwork. With the rise in popularity of urban agriculture and the ever-evolving and growing cities, urban agriculture can become a determinant when developing newly urbanized territories and regions.

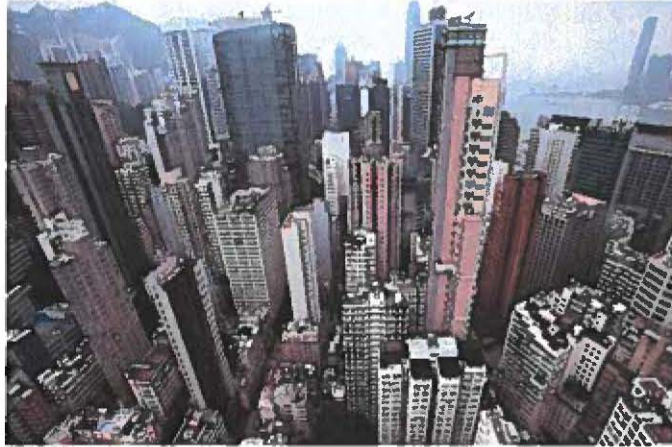


FIG. 01 |

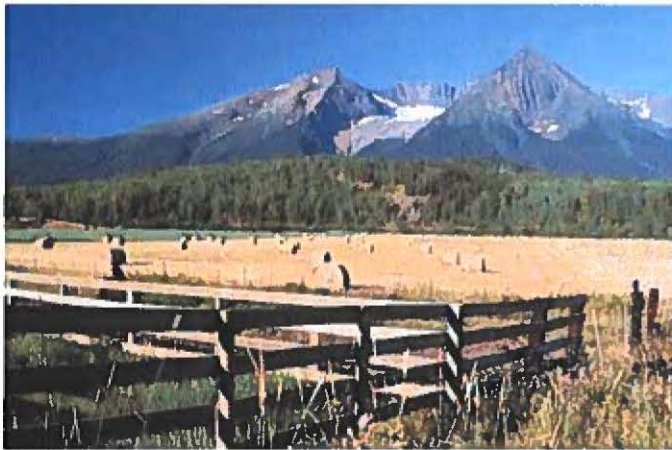


FIG. 02 |

Fig. 01 | <https://www.db.com/cr/en/concrete-urban-age-award-2014.htm>

Fig. 02 | <https://satyagraha.wordpress.com/2012/01/28/agrarism-and-occupy-wall-street/>

HISTORY OF AGRICULTURE IN AMERICA |

The beginnings of the United States of America were founded on the idea of farming in multiple ways. Some colonies were founded on the basis of religious freedom while others were founded specifically for farming and trade but all of the colonies' economies were centered around agriculture especially tobacco and rice. (footnote 3).



IMAGE 01 |

IMAGE 01 | *Early tobacco farmers. Photo from <http://www.tobacco-news.net/tag/tobacco-farmers/>.*



FIG. 01 |



FIG. 02 |

FIG. 01 | Men working in strawberry field in 1897. Photo from http://faculty.salisbury.edu/~mlewis/agriculture/chapter_two_introduction.htm.

FIG. 02 | Dairy farming in the British colonies. Photo from http://etc.usf.edu/clipart/6000/6063/dairyfarm_1.htm.

THE COLONIAL PERIOD (1607-1775)

The agricultural history of the United States dates back to the founding and settling of the colonies. The main focus of the first colonists beginning with the first permanent English colony of Jamestown, Virginia in 1607, was survival. One of the fundamental components of survival is food. Thus, when not engaging in protection or building of a shelter, colonists' time was primarily occupied by food production taking form in hunting, gathering, and farming. Most of the people that came from England during this time were from cities and towns and had very little farming experience. Coming originally for economic opportunity, colonists were quickly forced to adapt to new conditions for farming that were quite different than the conditions in England. The first crops were Indian corn and tobacco, one grown for survival and the other grown as a salable product for profit (footnote pg 7 Cochrane).

Most colonists stayed relatively close to the Atlantic coast. The majority of the Massachusetts Bay colonists in 1660 lived within fifty miles of Boston (footnote pg 20 Cochrane). One of the biggest incentives for attracting settlers to the colonies was the abundance of free or, at the very least, extremely cheap land. Land was distributed in various ways depending on the area. In the Massachusetts Bay Colony for example, arable land was separated into large strips which were then distributed among investing settlers. The allotments were known as "proprietors' commons" where each settler was able to cultivate his own lot within the larger commons. This system developed habits of group actions and encouraged a community-centered social life (footnote pg 25-26 Cochrane). The large increase in demand back in Europe for tobacco, dramatically increased the demand for labor in the colonies. As a result, colonists strove to meet this demand in one of three ways: raising large families, importing indentured servants from England, or buying slaves.

JEFFERSON'S AGRARIAN IDEALS

Thomas Jefferson is widely known for being an American Founding Father, principal author of the Declaration of Independence and the third president of the United States. His political views were strongly rooted in the virtue of the civilian as the fundamental part of government. Jefferson believed that the will of the people would guide government to where it was supposed to be rather than having a strong central government (footnote ushistory.org). As a Founding Father, Jefferson had many opportunities to instill his personal beliefs into the original values of the United States.

Jefferson's political understanding of what mattered grew from his deep appreciation of the land. Many of his political beliefs, which are the philosophical basis on which our country was founded, hinge on the relationship between the land and the people. In a letter to John Jay in 1785, Jefferson said "Cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independent, the most virtuous, and they are tied to their country and wedded to it's liberty and interests by the most lasting bands" (Thompson 46). By creating a relationship with the land, Jefferson believed a citizen was moral and just and thus could lead a more successful government. "Farmers, in contrast, are invested in the improvement and development of their land. They are 'tied to their country' (Jefferson's words) in a literal sense... It is the tie to the tract of land on which they farm that bonds farmers to the land of their citizenship so firmly" (Thompson 278). Those that farm the land are "the chosen people of God" according to Jefferson as he said in his Note on Virginia in 1782.

“Cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independant, the most virtuous, and they are tied to their country and wedded to it’s liberty and interests by the most lasting bands.”

THOMAS JEFFERSON | TO JOHN JAY | AUGUST 23, 1785

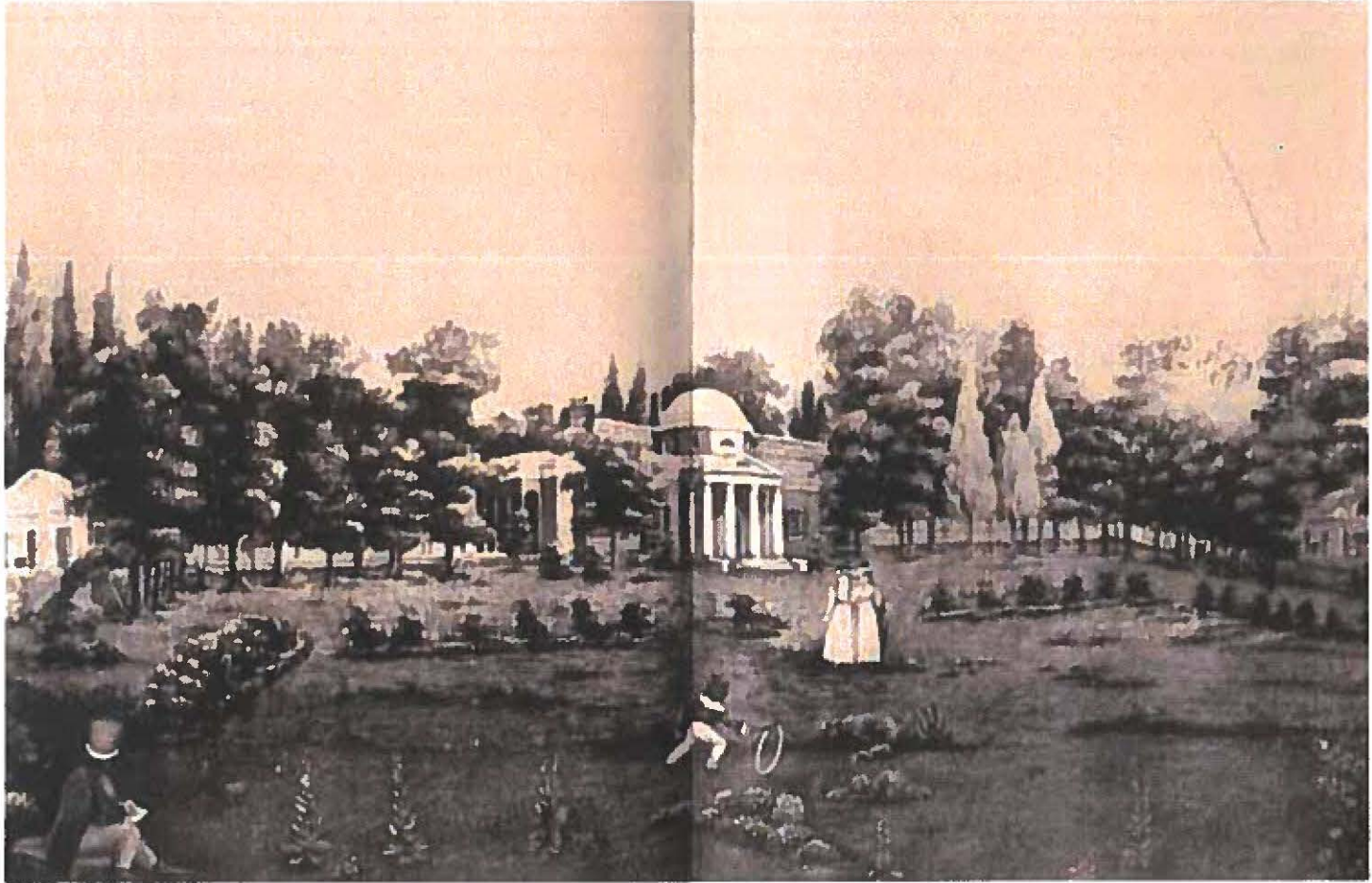


IMAGE 01 |

IMAGE 01 | *Thomas Jefferson's primary plantation of Monticello in 1826. Photo from <http://digital.library.upenn.edu/women/sadler/bloom/bloom.html>.*

Alexander Hamilton, the first Secretary of the Treasury, saw the new United States with a strong commercial economy, a vigorous executive branch, and a national bank. Jefferson thought of Hamilton's ideals as too closely related to England's principles. The manufacturing and industry that Hamilton supported threatened to rob people of the independence as farmers. Jefferson thought industry should remain in Europe while American citizens could escape from the British model and connect with the land (ushistory.org).

Thomas Jefferson was a visionary who believed "that all men are created equal" (ushistory.org/delcaration/document/). His attempts to place governing power in the hands of the people are still seen in our present day government. He firmly supported the full and complete separation from Britain in terms of understanding the new United States as an independent nation in every sense including in philosophical values. Britain and Europe were made up of dense urban city centers while America was an agrarian democracy within which people could become better human beings.

BREAKING OUT OF THE ATLANTIC SEABOARD (1775-1820)

After the American Revolution, the issue of land ownership came into question, whether they were going to employ a feudalistic type of land law or a freehold land tenure system. Based on the land policies adopted by the states, a freehold land tenure system prevailed, encouraging private individual ownership of land rather than state-owned and development of small farmers communities by smelting small units of land.

As people began moving westward, away from the coast, the frontier was primarily occupied by hunters and woodsmen. Not far behind them however, were small pioneer farmers. Because the land they lived on was not fully cleared and cultivated, the pioneer farmers supplemented their farm income with hunting and gathering. East of the frontier were the established commercial farms. Farmers here were not interested in moving west because their roots were already established. After the War of 1812 when the Indians were defeated, there was southern migration into western Georgia, Alabama, and Mississippi due to increased demand for cotton in England and western Europe and decreased soil fertility in areas of the original colonies.

Pioneer farmers were far from productive with minimal labor available. Essentially farming only with an ax, a hoe, and a scythe, the pioneer farmer needed better tools to enable him to do the work of multiple people. The beginning of the 19th century produced many new farming equipment. The first major breakthrough was the cast-iron plow, first patented in 1797 and again in 1819 with the introduction of interchangeable parts. By the 1850s, the plow had been adapted to fit the needs of each region in the country made of either wrought iron or steel (footnote pg 67 Cochrane). The biggest advancement of farming machinery in the south was the cotton gin which was invented by Eli Whitney in 1793. Although the cotton gin made the separation between the cotton lint and the seeds significantly easier, farming in the South relied primarily on slave labor which delayed the mechanization of farming in the region (Cochrane pg 69).



IMAGE 01 |

IMAGE 01 | *The moving frontier: census data from 1800 chronicled the constant westward flow of population. Photo from The Development of American Agriculture: A Historical Analysis.*

FROM PIONEERING TO COMMERCIALIZATION (1820-1860)

During this time, many laws were passed allowing easier access to the purchase of land. For example, the Land Law of 1820 reduced the minimum number of acres of public land an individual could buy which allowed for an increased number of people to become landowners. More and more states were added to the country as the westward movement continued increasing the number of small freehold farmers dramatically.

In addition to the earlier development of the plow and the cotton gin, other machines also emerged during this time. While widespread use of farming machines was not common until the 1850s machines were being developed during the 1820s and 1830s and came into commercial usage on a limited basis during the 1840s.

By 1820, development of canals and steamboats allowed for easier access between the west and the east for both passengers and cargo. Steamboats were primarily designed for maximum capacity rather than speed to allow for transportation of agricultural products including cotton, grain, and livestock along the Mississippi and Ohio rivers. The Erie Canal allowed for goods to be transported by water from Chicago to New York by connecting the Great Lakes system and the Hudson River. Footnote pg 65 Cochrane)

While steamboats were fantastic at transporting goods, the United States needed a new form of transportation to travel the great expanse of new land. In 1830, less than 100 miles of railroad track spanned the United States. Just 30 years later, that number multiplied by 300 resulting in over 30,000 miles of railroad connecting the east and west (footnote pg 66 Cochrane). Compared to steamboats, railroads were far faster and more dependable and also allowed for connections between cities that could not be reached by water. By the end of this era, a large share of the agricultural products of the Midwest were transported along railroads to the East Coast.



FIG. 01 |



FIG. 02 |

FIG. 01 | Men loading steamboat with agricultural products in Memphis. Photo from <http://www.ck12.org/user:a2fyzw4ubgf-3c29uqhrjc2vkals5uzxq/book/Tennessee-8thGrade-Social-Studies/section/7.6/>.

FIG. 02 | Texas and South-Eastern Railroad log train at Diboll. Photo from <https://www.texasbeyondhistory.net/alldridge/logging.html>.

After clearing out a couple acres of forest, pioneer farmers would plant corn and vegetables for home consumption. Gradually, with the aid of new farm machines, the farm grew and a surplus was produced. The surplus would then be shipped to outside markets (Cochrane 71). By 1860 in the Old Northwest, with such a large surplus of corn, a new industry had developed which included “the production of corn, the feeding of that corn to hogs, and the slaughter and packing of hogs in centers such as Cincinnati, which had become known as ‘Porkopolis’” (Cochrane 72). The Old Northwest also produced a surplus of grains like wheat that could be transported throughout the country, even abroad. “Thus we see that agriculture in the Upper Midwest had by 1860 developed the principal characteristics of its modern form. It had become an efficient and surplus produced of feed grains; this surplus provided the base for a livestock-growing and livestock-fattening industry” (Cochrane 73).

Population in the New England and Middle Atlantic states nearly doubled between 1820 and 1860, primarily concentrated in cities and towns (Cochrane 73). During this period, farming in this region shifted from being general to specialized. Specialization depended upon geographical location, soil, and climate of the area. Farmers in the east began to focus on perishable products like cheese, milk, butter, poultry, and vegetables (Cochrane 74).

In the south, the largest and most important commercial crop was tobacco. It produces a high yield and thus a high profit in terms of acreage however, there is also a high turnover rate for land. “The soil was regarded as an expendable commodity” (Cochrane 75) so farmers would only use one piece of land for three or four years before moving on to a new piece of land. Reforms were made in the 1830s and 1840s attempting to rotate tobacco with other crops like grains and clover to restore nitrogen and other nutrients back into the soil.

Along with the development of commercial farming came concurrent development of cities as market centers such as Chicago, Buffalo, St. Louis, and New Orleans (Cochrane 77). These markets centers had to handle and distribute the increasing agricultural surplus created throughout the country.

DECLINE OF U.S. AGRICULTURAL FARMING (1970-1990)

New farming development patterns began emerging in the 1980s. The number of land purchases for farming decreased as well as the input of mechanical power and machinery for American farms. The number of farms continued to fall but the average size of farm grew (Cochrane 159). This change in numbers shows how small individual owned farms were dwindling and the large mass production farms were gaining command of the total productive resources (Cochrane 161). "The productive resources of American agriculture had by 1990 become concentrated in the hands of a relatively few large to very large farmers" (Cochrane 161). Many of the small farmers only farmed part time receiving most of their income from nonfarm employments (Cochrane 162).

1 million acres of farmable land near cities disappear each year due to development - Ingredients

"There are so few farmers in the United States now that they are no longer included as an occupation in the census. We're lumped with 'other' yet we are expected to feed more and more and more people." - Will Newman, Oregon Sustainable Agriculture Land Trust - Ingredients

Land to farm is decreasing line. People to feed is increasing line. At some point lines will cross and it will be impossible to feed everyone - Will Newman - Ingredients

HISTORY OF AGRICULTURE IN AMERICA |

COLONIAL ERA (1630-1812) - mercantile capitalism

- Colonies
- American Revolution
- The New Nation
- Land Ordinance of 1785 - Northwest Territory - township grid system

INDUSTRIAL PERIOD (1812-1920) - competitive capitalism

- Increasing agricultural efficiency - move from rural to towns/cities
- Factory Towns
 - Transportation - Trains and Railroads
 - Steel development - highrises, skyscrapers - higher density of people
 - Increased Communication

METROPOLITAN PERIOD (1920-1960) - monopoly capitalism

- Great Depression
- Business concentrated into hands of relatively few people
 - World War II
 - Specialization in economy led to mutually beneficial system
- Post Industrialization
- Suburbanization

MULTICENTERED EXPANSION PERIOD (1960-PRESENT) - global capitalism

- International
- Era of Communication

LANDSCAPE URBANISM THEORY

"The nineteenth century produced a hotbed of ideas and approaches to city planning and social theories aimed at taming the problems of industry's rise and saw no lack of utopian communities. Reacting to what was seen as the physical degradation of the land as factories encroached upon the rural landscape, these schemes also attempted to redistribute wealth and resources. The ideas behind Ebenezer Howard's Garden Cities and Tony Garnier's Cite Industrielle can be seen in today's concepts of zoning and city planning. That industrial areas are often set apart from the rest of their cities stems from these zoning approaches, and their integration into the urban fabric can be a major challenge to redevelopment." Berens 14

INDUSTRIALIZATION

"Starting with the first factories, facilities for manufacturing and distributing goods produced indelible marks on the physical layout and sociology of cities, and indeed countries." Berens 3

"The story of the impact of industry's arrival and establishment can be read from their remains today - urban population concentrations, patterns of transportation networks, and the evocative ruins of factory and warehouse buildings." Berens 3

"For trading purposes, industry first settled where is had easy access to rivers and oceans... As technology developed, especially in America and Britain, industry claimed waterfronts in order to harness water power... Developments that manipulated and controlled nature for more energy and consistent results quickly followed, as waterways were dammed and raceways created in order to moderate the effects of drought and generate a constant flow of power throughout the seasons." Berens 3 - human control over nature

"The natural landscape was transformed to accommodate industry's needs, and towns formed or grew exponentially in response to this rise in development. Social and physical changes occurred as towns expanded around these mills, thus enabling laborers to live close to the factories where they worked." Berens 4

"As early as 1791, Alexander Hamilton and a group of investors founded the Society for Establishing Useful Manufactures (SUM). It was created to implement his Congressional Report on Manufactures, which stressed the importance of creating an independent American manufacturing capacity to establish economic autonomy from Britain." Berens 4 - in opposition to Jefferson's agrarian ideals

POST-INDUSTRIALIZATION

"Technological advances after World War II combined with a population boom and a desire to apply these advances to improve everyday life. Industry flourished, supplying war-weary populations with the means for becoming modern. Unfortunately, this newly energized activity was accompanied by the blatant disregard to the land, sea, and air around it. Rivers became de facto sewage systems when industry merely dumped one chemical byproduct after another into them without looking back... Slowly, postwar sensibilities became aware of a newly energized sense of the environment, emphasizing the dangers of pollution and environment degradation." Berens 19

"As lifestyles and expectations changed, industries that had built up these cities were seen as interlopers in their own neighborhoods. At the same time, the roads that improved the movement of goods also served to disperse the population. In America, government policies encouraged the building of suburbs, further emptying cities. Industry acted as the population did - if still viable, it left urban centers and resettled miles away from its traditional base. If obsolete, it merely closed its doors. In either case, it became easier to abandon decaying industry than to clean it up and replace it." Berens 14

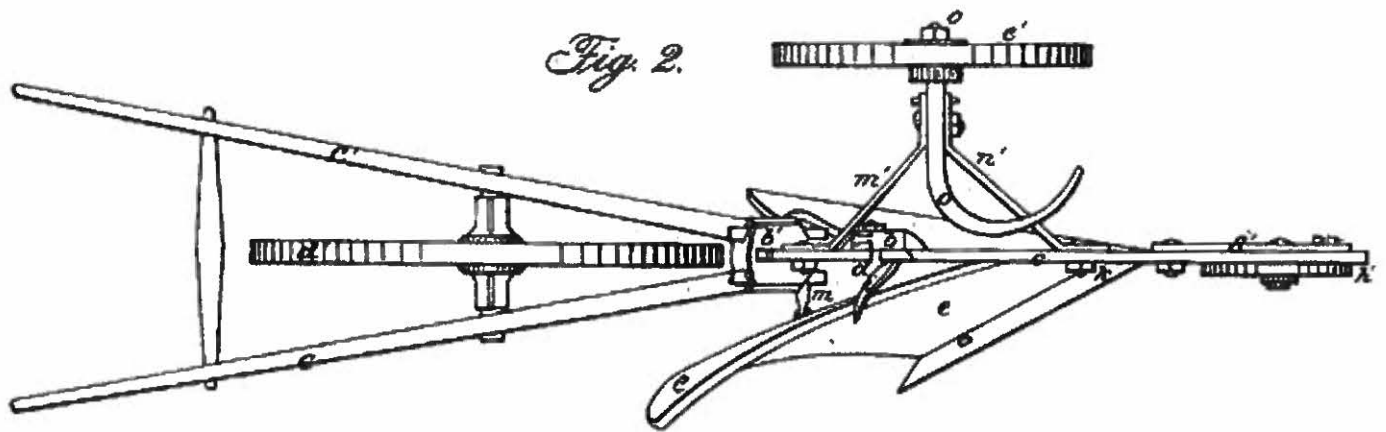
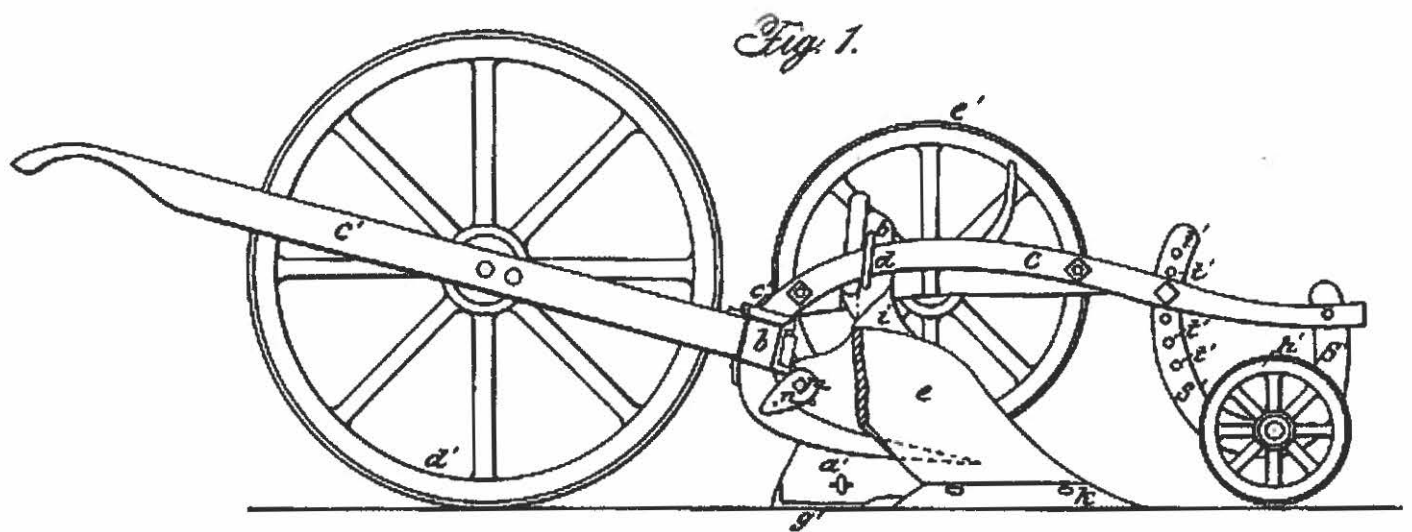


IMAGE 01 |

IMAGE 01 | Caption here. Photo from <http://wattiploar.com/>.

ALTERNATIVE FOOD SYSTEMS (PRESENT DAY)

Farmer's Market

"With the growth of the farmer's market an alternative food system is being established" - Ingredients

"The farmers are selling at their stands so over that course of time [20 years] you develop some very close relationships with those people and you start to learn about how the food is produced... Where does our food come from? Why are this year's cherries so much better than last year's? And they of course know the answer because they are there out in the field everyday... The market is an extraordinary place to be connected to people... People want to know values embedded within their food." - Peter Hoffman, Savoy - Ingredients

Local Food Movement

"The local food movement then takes on primary importance in transforming our country's food system and energy use to something more sustainable. We may go solar and wind but we can't become energy self-sufficient unless the local food system is integrated within other strategies to achieve sustainability." - Gary Nabhan, Author, Educator - Ingredients

Gary Nabhan, Author, Educator - Ingredients

Organic Food Systems

Fair Trade

Agroecology

Community Gardens

Urban Farming

Vertical Farming

Hydroponics, Aquaponics

"Despite the increasing visibility and popularity of the alternative food movement in the United States, scholars have pointed out that the movement conflates localism of food production and consumption with the advancement of environmental sustainability and social justice. This local trap would not only misdirect the movement but could also potentially compromise its other major concern, food access among the underprivileged. On this point, the emerging locavore movement that fetishizes local food is alarming to those whose primary concerns are the needs of underprivileged" (Yuki Kato, 371)

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FALL PRECEDENT RESEARCH

Case Studies

Broadacre City

City for 3 Million Inhabitants

Precedents

Garden City Movement

Grow Dat Youth Farm

The Plant

Arcology

BROADACRE CITY | Frank Lloyd Wright | Utopian Urban Plan | 1932

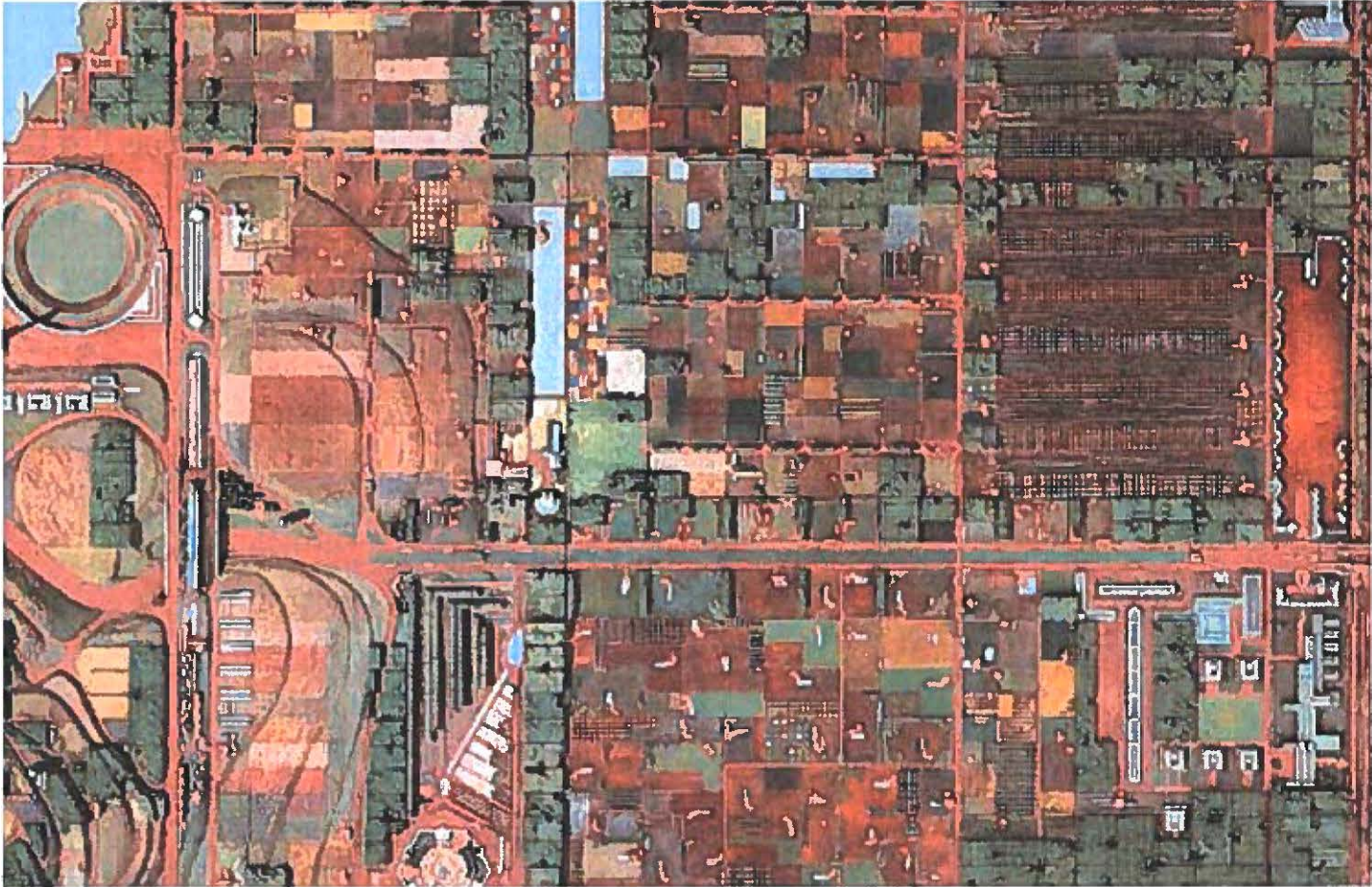


IMAGE 01 |

Frank Lloyd Wright's Broadacre City is his attempt at a response to the decentralization of industrial cities and the progression towards suburbanized, low-density cities with a heavy focus on the car. His proposal, shown in model form at Rockefeller Center in New York, was an illustrative representation of a previously centralized urban area that had been distributed along a linear transportation system. Running parallel to the transportation spine were five zones: industrial, agriculture, residential, civic and cultural, and finally recreation. The residential zone, as the largest, takes up about half of the two mile wide cross section and can continue indefinitely along the transportation spine. In a four square mile area, the land averages out to about two acres of land per family although roughly one third of the land is dedicated to nonresidential land uses. The agricultural zone is comprised mainly of community-owned farms.

Wright's proposal requires a massive national transportation network and system and more reliance on country government allocating one acre of land per family. The philosophical background of Broadacre is a combination of many different theories but most in particular, Thomas Jefferson's agrarianism. By allotting each family one acre of land, Wright affirms Jefferson's belief that people must have a relationship with and take ownership of the land. Broadacre City is an attempt at physically shaping the urban form based on progressive social theories and objectives.

While Frank Lloyd Wright focused on the combination of architecture and the natural environment there were specific zones of program that did not have much overlap. Also, his plan relied heavily on the car so everything was very spread out and not pedestrian friendly.

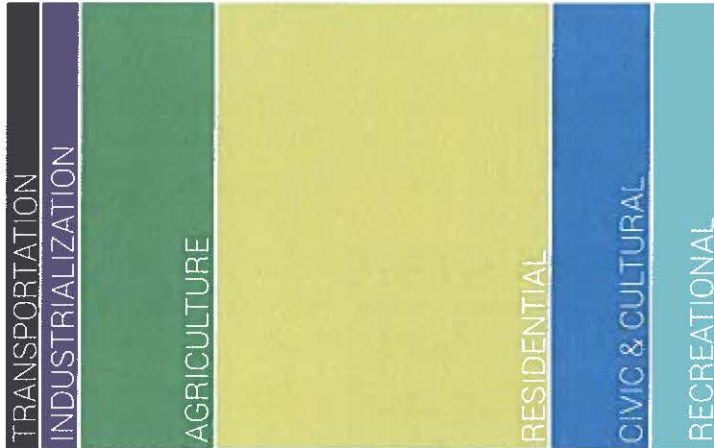


FIG. 02 |



FIG. 04 |

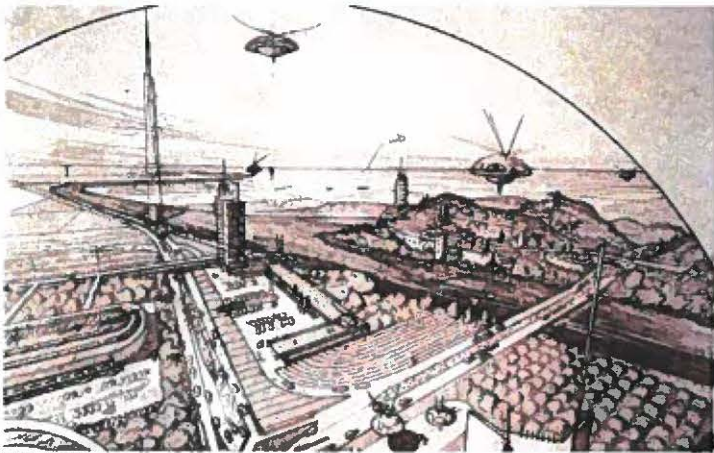


FIG. 03 |

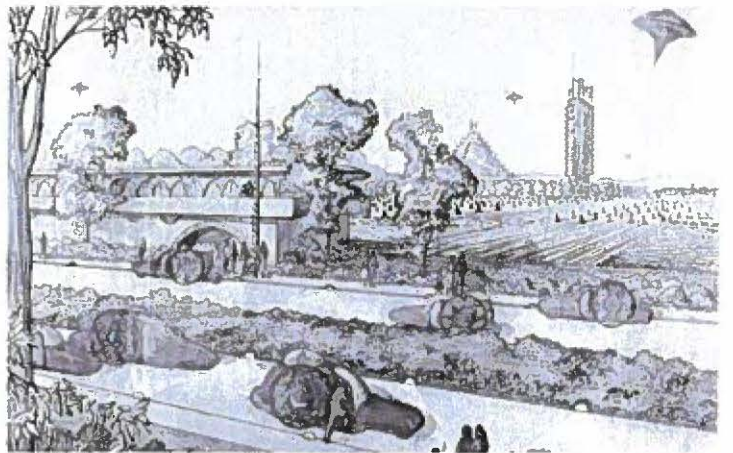


FIG. 05 |

FIG. 01 | *Physical model of Broadacre City.* Photo from <http://www.metropolismag.com/Point-of-View/July-2014/What-Broadacre-City-Can-Teach-Us/>.

FIG. 02 | *Broadacre City's programmed zones.* Diagram by author.

FIG. 03 | *Frank Lloyd Wright's sketch of Broadacre City.* Photo from <http://www.metropolismag.com/Point-of-View/July-2014/What-Broadacre-City-Can-Teach-Us/>.

FIG. 04 | *Agricultural detail of physical model of Broadacre City.*

Photo from https://www.moma.org/explore/inside_out/2014/02/03/frank-lloyd-wrights-living-city-lives-on-conserving-the-broadacre-city-model.

FIG. 05 | *Frank Lloyd Wright's sketch of Broadacre City.* Photo from <http://paleofuture.gizmodo.com/broadacre-city-frank-lloyd-wrights-unfinished-suburban-1509433082>.

CITY FOR 3 MILLION INHABITANTS |

Le Corbusier | Utopian Urban Plan | 1922

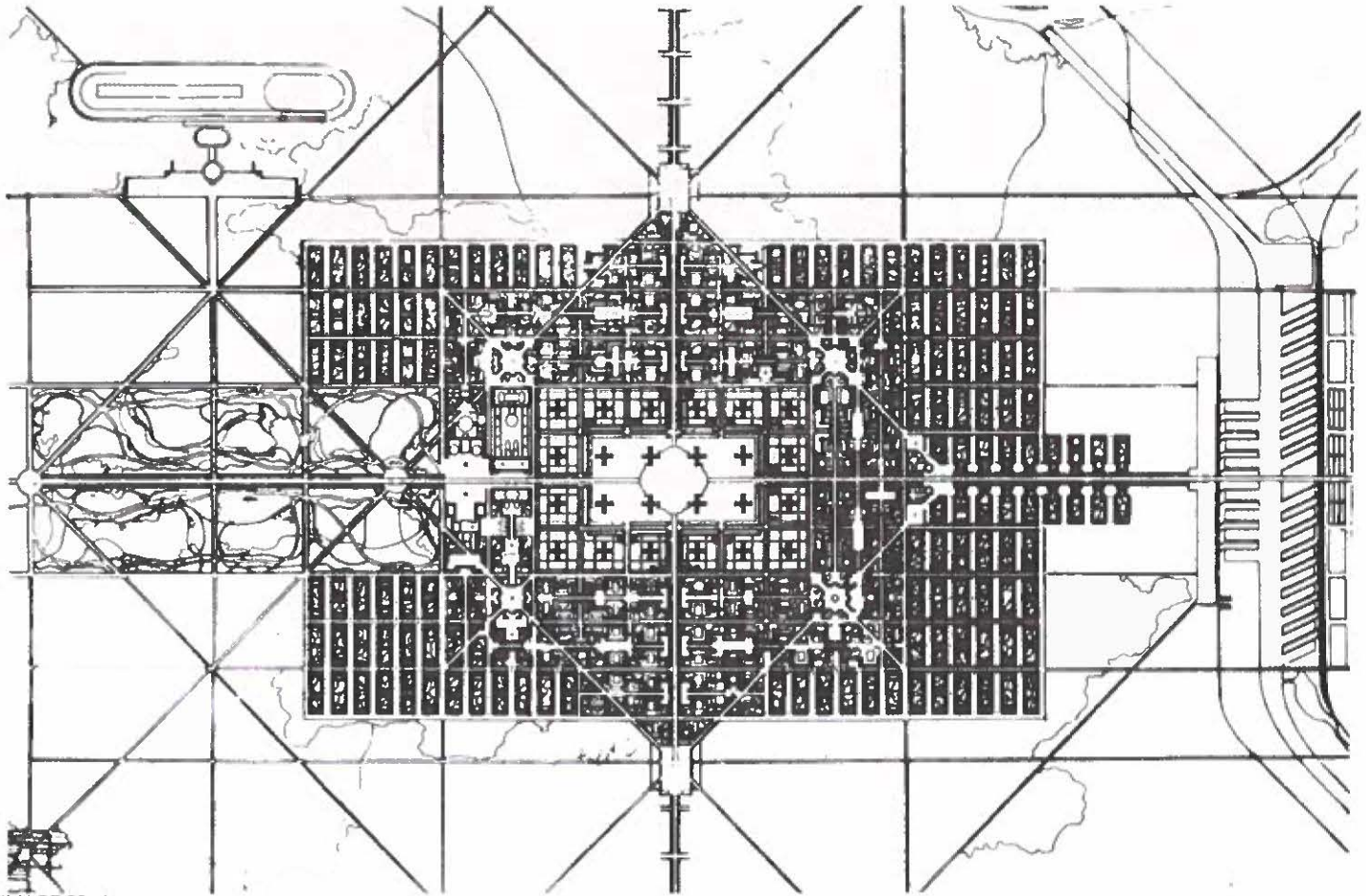


IMAGE 01 |

The City for 3 Million Inhabitants was a proposal by Le Corbusier with sixty-story cruciform skyscrapers built on steel frames and encased in curtain walls of glass. The skyscrapers housed both offices and the flats for the most wealthy inhabitants.

At center of planned city was a transportation hub which housed depots for buses and trains as well as highway intersections and at the top, an airport. Pedestrian circulation was segregated from roadways.

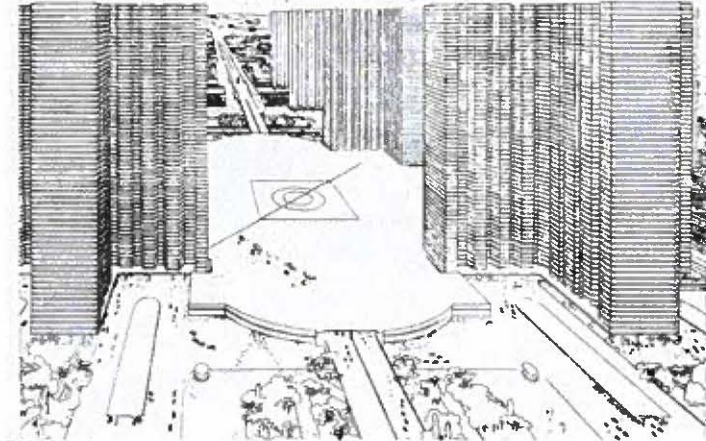


FIG. 02 |

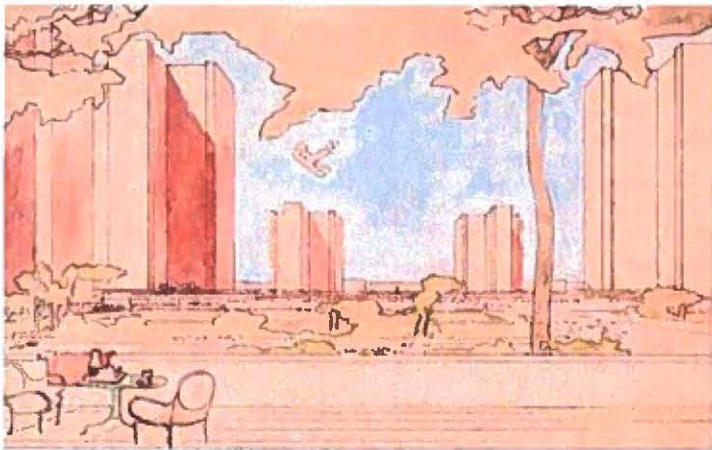


FIG. 03 |

FIG. 01 | *Le Corbusier's planning sketch of City for 3 Million People divided into zones.* Photo from <https://relationalthought.wordpress.com/2012/07/29/1189/>.

FIG. 02 | *Aerial sketch of vertical towers and open landscape between.* Photo from <https://www.studyblue.com/notes/note/n/midterm/deck/2310626>.

FIG. 03 | *Sketch perspective of continuous park and towers in Le Corbusier's City for 3 Million People.* Photo from <https://www.studyblue.com/notes/note/n/midterm/deck/2310626>.



FIG. 04 |

FIG. 04 | *Architectural model of Le Corbusier's urban plan executed in Paris, France.* Photo from <http://www.architecturalworld.com/2008/05/contemporary-city-for-three-million.html>.

GARDEN CITY MOVEMENT | Ebenezer Howard | 1898

Ebenezer Howard began an urban planning movement called the Garden City movement in 1898. He examined the relationship between Town and Country and attempted to combine the best aspects from each such as beauty, nature, green fields, green parks, cooperation, social opportunity, high wages, low rents, good commerce, and low pollution. Each idealized garden city was intended to be self-contained communities surrounded by "greenbelts" which contained areas of industry, agriculture, and residences. After a city reached capacity with a population of 32,000 people, a new garden city would be established nearby.

The Garden City movement is an idealized version of urban planning. Most cities are pretty developed today and there are very few new cities being developed that have the capability of integrating the ideas of the garden city from the beginning of its existence. However, the key points behind the movement, including zoning limitations of sprawl and density, quality of life in a city, bringing green space into the urban area, and how urban and rural areas relate to each other, are all ideas that can be applied to regeneration of existing cities.

FIG. 01 | Advertisement for Garden City Movement. Photo from <http://www.houseplanninghelp.com/do-garden-cities-just-become-cities-over-time/>.

FIG. 02 | Diagram showing relationship between central city and satellite cities.. Photo from <http://www.houseplanninghelp.com/do-garden-cities-just-become-cities-over-time/>.

FIG. 03 | Diagram showing relationship between central city and satellite cities. Photo from <https://scodpub.windpress.com/2011/03/01/garden-cities-by-ebenezer-howard/>.

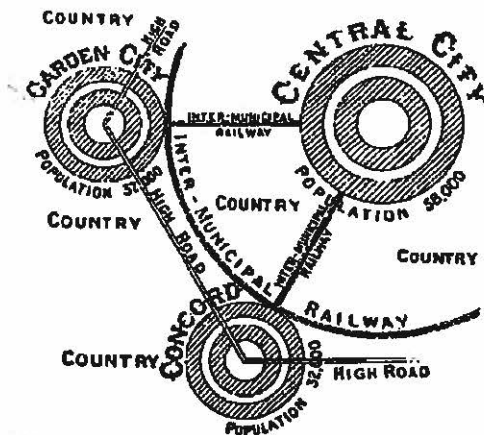


FIG. 02 |

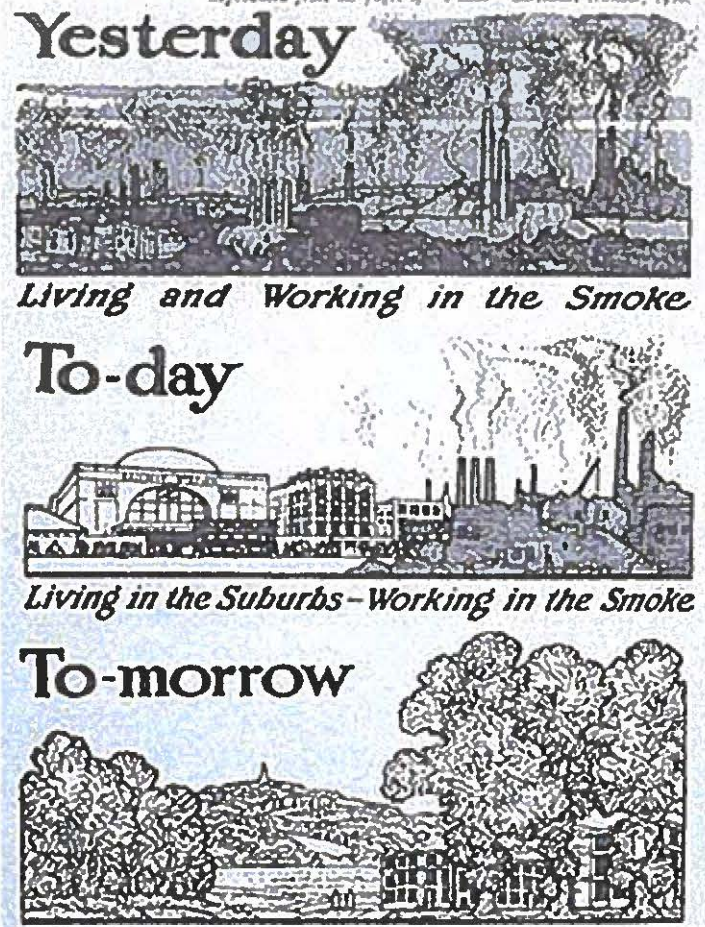


FIG. 02 |

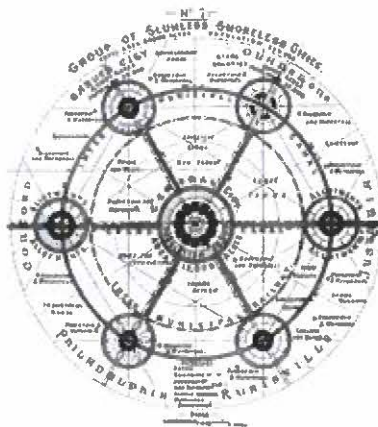


FIG. 03 |

GROW DAT YOUTH FARM | Tulane City Center | New Orleans, LA | 2012

Grow Dat Youth Farm is a two-acre sustainable farming located in City Park in New Orleans. The campus was designed and built by Tulane City Center, which is part of the Tulane School of Architecture, out of seven repurposed shipping containers. The program's mission is to inspire youths and adults to create personal, social, and environmental change within their community through the work of urban agriculture.

The development of the Grow Dat Youth Farm shows how bringing agriculture into the urban area can teach and educate the community about from where and how we get our food. It not only educates the community about urban farming and provides healthy food for the area, but it also maintains a large focus on the development of youths in New Orleans. It brings together diverse people from many different backgrounds to come together to contribute to the growing conversations surrounding public health, local economies, and sustainable urban food systems.

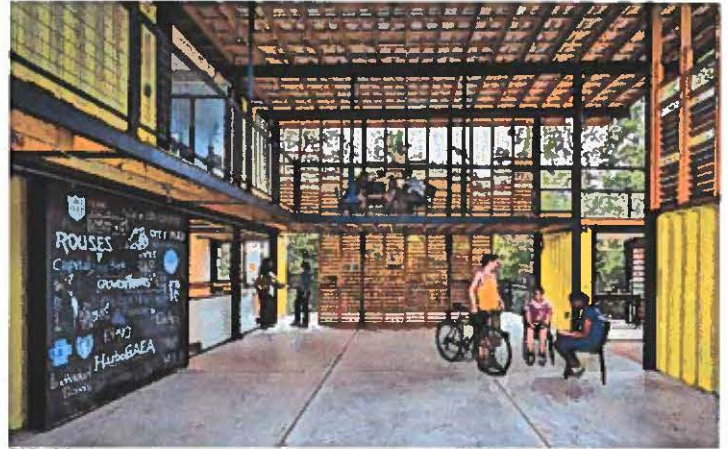


FIG. 01 |



FIG. 02 |



FIG. 03 |



FIG. 04 |

THE PLANT | Architect/Designer | Chicago, IL | 2010-2016

The Plant is a former meat packing warehouse repurposed as a no-waste indoor vertical farm, food-business incubator, and education space. It includes an urban produce farm, tilapia farm, beer brewery, kombucha brewery, and shared kitchen. The center of the zero-waste facility is an anaerobic digester which uses micro-organisms to breakdown biodegradable waste from the other program features. The complex network of dependent relationships redefine the idea of an ecosystem. Both natural and mechanical systems are all on a continuous loop relying on one another to create electricity, steam, heat, oxygen, carbon dioxide, ammonia and nitrates charging the next function resulting in food, beer, and kombucha for the community.

Taking the traditional urban farm to the next level, the Plant fully embraces the idea of sustainability by being completely self-reliant. It not only brings agriculture into the urban area but also brings new life to a previously vacant building and neighborhood. It provides a facility for small businesses to establish sustainable practices. The Plant serves as an example of a closed-loop net-zero urban food system that should be replicated in the future.

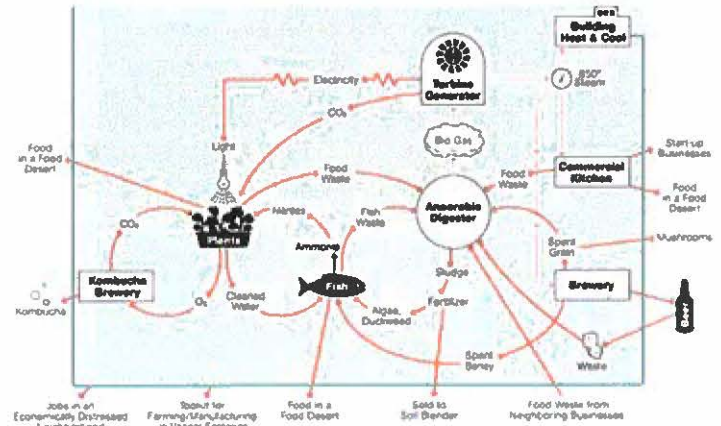


FIG. 01 |

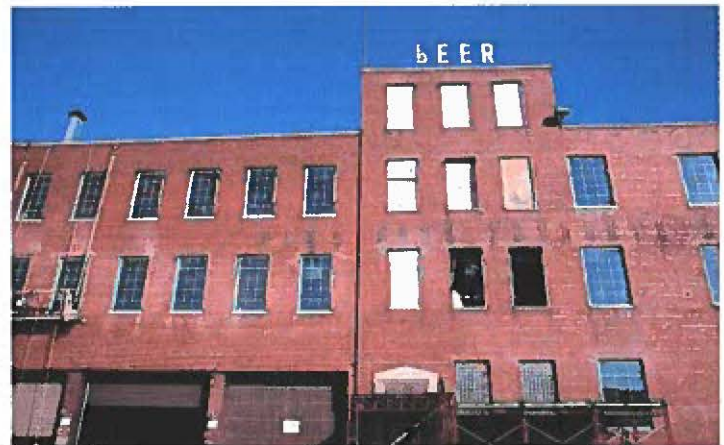


FIG. 02 |

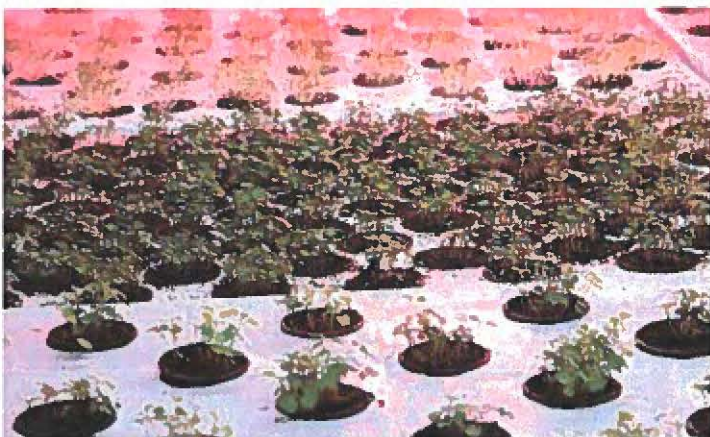


FIG. 03 |



FIG. 04 |

ARCOLOGY | Paolo Soleri | 1965

Arcology is a self-contained unit housing up to 520,000 people in megastructure 300 stories high and occupying just the space of a few city blocks. It contained underground industrial and commercial areas, the city center at ground level, a public area and a promenade on the first level, a neighborhood and park (both outdoors) on the second level, gardens, a community area (for recreation), and a living-working area on the third level - about 1500 feet high and housing at the very top.

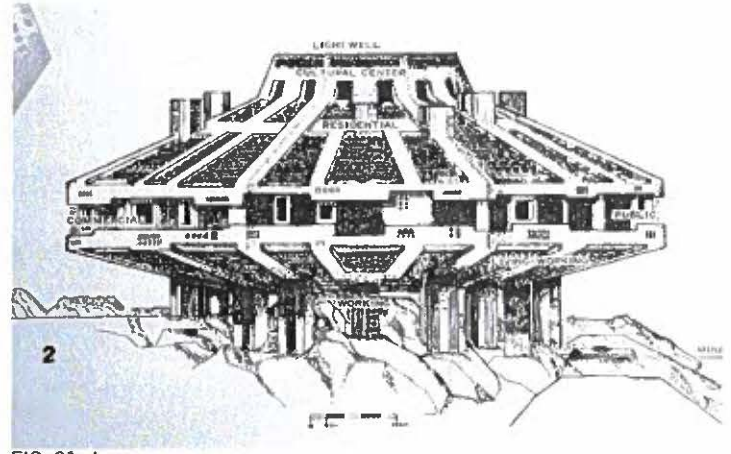


FIG. 01 |

FIG. 01 | Drawing of entire self-contained city. Photo from <https://arcosanti.org/node/9775>.

FIG. 02 | Section of entire self-contained city. Photo from <https://arcosanti.org/node/9775>.

FIG. 03 | Diagram of Arcology Photo from <https://arcosanti.org/node/9775>.

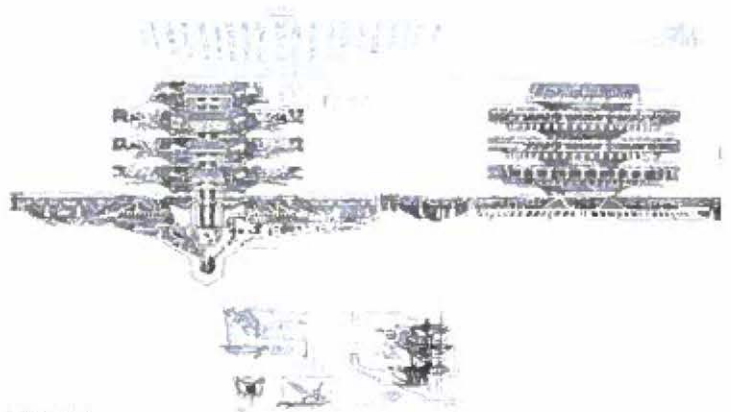


FIG. 02 |

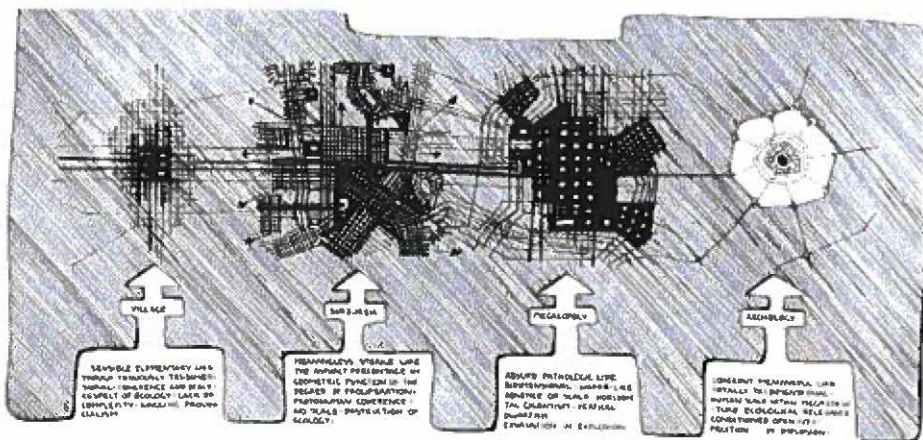


FIG. 03 |

“Shift the discussion of landscape urbanism away from the role of landscape as a balm for the former sites of industrial production left vacant by the global economy and toward a conception of landscape as the primary determinant of urban order in the context of newly urbanizing territories and city regions.”

CHARLES WALDHEIM | AGRARIAN URBANISM AND THE
AERIAL SUBJECT

FALL PROPOSAL

Project Narrative

Ethical Principles

City Observations Lessons

City Characteristics

Program

PROJECT NARRATIVE |

The City is also a Nation. Its space is secured by its boundaries and by the inalienability of its distinction. Polycentric, polysemous, polymorphic and heterarchic, the City is both a place where all sorts of arrangements are possible, and the apparatus for harmonizing autonomy and propinquity.

Freedom, pleasure, convenience, beauty, commerce, and production are the reasons for the City. Participation in these attributes is a fundamental civic right and must be ever refined through the filter of consent. The purpose of this Code is to strike a balance between individuation and agreement. Wherever possible, this shall proceed by induction, by beginnings in the particular. The City will always prefer to see the small initiative reflected in the large.

The building of the City shall seek out certain satisfying relationships that shall characterize its singularity and institute its memory. The code and the plan are the armatures for the expression and extension of such preferences and the protocol for experiment. Their fulfillment acts as a stimulus to art, in its friendship with the private and collective imagination.

The City is in nature, of nature, and second nature. These relations are made manifest in the City's steady state. As an ecology, the City's abiding interests are self-sustenance and diversity. Its growth is merely the means towards homeostasis, not an absolute end. Recognition of limits is a key to both survival and perfection. To these ends, the City seeks the liberating autonomy of material and self-reliance. Cities are units of human accountability to the planet.

This Code is written in the belief that meanings inhere forms, and that the settings for social life can aid its fulfillment. Acknowledging the gravity of permanence and the oppressions of extent, it seeks, in its limits, not to restrain associations but to free them. It is not the description of a single city but an infinity. This is the first iteration of this code. There will be no final version.

ETHICAL PRINCIPLES |

The right to equal access to production and distribution of food.

The right to a voice in management of the food system.

The right to a city with a clarity of limits.

The right to a city with a harmonious and visible relationship to nature.

The right to free movement throughout the City.

The right to human locomotion as the privileged form of mobility.

The right to collective self-sufficiency.

The right to a just and fair city.

01 People walk in the sunshine.

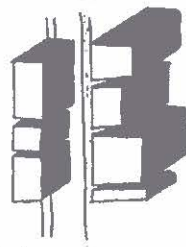


FIG. 01 |

06 Rents rise with increasing pedestrian density.

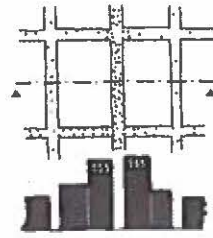


FIG. 02 |

25 Buildings outlive uses.



FIG. 03 |

78 Narrow streets carry many pedestrians.

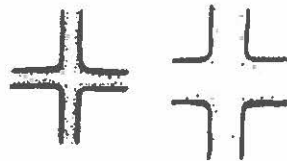


FIG. 04 |

IMAGE 01 | *People walk in the sunshine.* Image from *Urban Code: 100 Lessons for Understanding the City* by Anne Mikoleit and Moritz Purckhauer.

IMAGE 02 | *Rents rise with increasing pedestrian density.* Image from *Urban Code: 100 Lessons for Understanding the City* by Anne Mikoleit and Moritz Purckhauer.

IMAGE 03 | *Buildings outlive uses.* Image from *Urban Code: 100 Lessons for Understanding the City* by Anne Mikoleit and Moritz Purckhauer.

IMAGE 04 | *Narrow streets carry many pedestrians.* Image from *Urban Code: 100 Lessons for Understanding the City* by Anne Mikoleit and Moritz Purckhauer.

CITY OBSERVATION LESSONS |

People walk in the sunshine.

Safe surroundings increase profit.

Rents rise with increasing pedestrian density.

Passersby have an intuitive knowledge of the district.

Places of concentration depend on places of emptiness.

Constant grids afford manifold patterns of movement.

Buildings outlive uses.

Entrances are meeting points.

Locals and tourists use the street at different times.

Playgrounds draw children in.

Not every playground is a playground.

Crossroads are public squares.

Public squares and niches create positive outside spaces.

People are afraid of the dark.

Subway stations thicken pedestrian traffic.

Narrow streets carry many pedestrians.

Narrow streets carry little traffic.

Cars drive down main roads faster than down side streets.

A neighborhood has borders.

Through streets are borders.

CITY CHARACTERISTICS |

Walkable - pedestrian friendly

Imageability - elements of path, edge,
district, node, landmark

Satellite city connected by public
transportation

Community focused

Collective self-sufficiency

Just, fair

PROGRAM |

Land for 500,000 people

Density 5,000-10,000 people/sq mile

50-100 sq mile

Production of food for all city dwellers

Distribution of food for city dwellers

Housing for all city dwellers

Water harvesting and storm water
management

Educational Institutions

Civic Institutions

Commercial Institutions

Cultural Institutions

*“How do we put ideals within everyone’s reach?
How do we transform them from luxury products
into typical ones? How do we make a foodscape
crowded with junk into an anomaly, and one flush
with fresh, healthy food the norm?”*

TRACIE McMILLAN | THE AMERICAN WAY OF EATING

FALL PROGRAM ANALYSIS

Township Divisions

Diagramming Urban Centers

Diagramming Agriculture

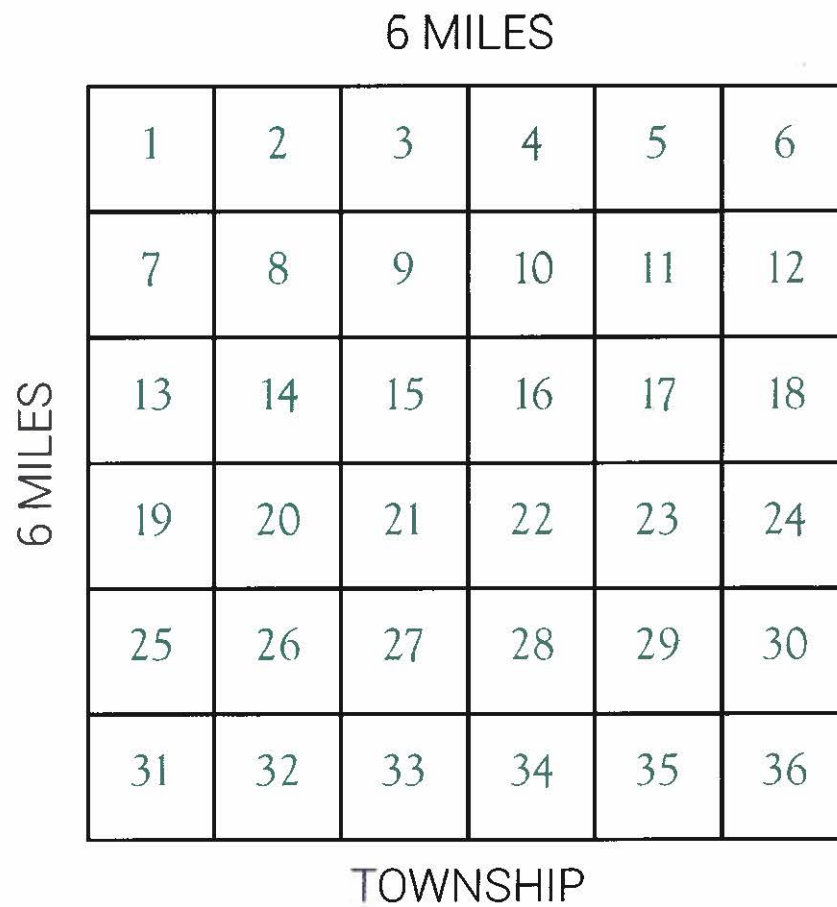
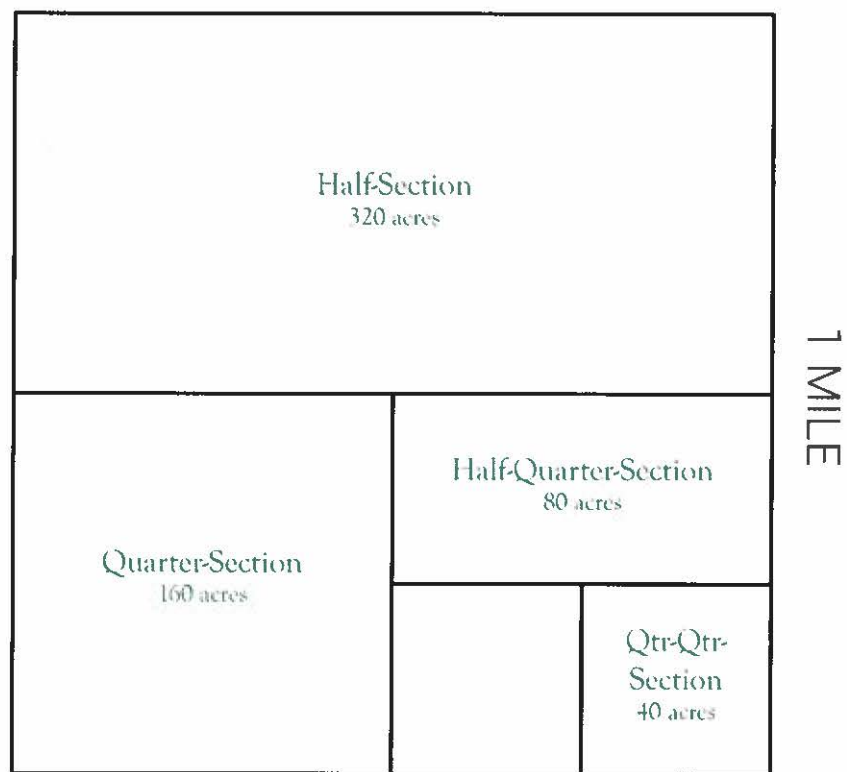


IMAGE 01 |

IMAGE 01 | Township divisions of the Northwest Territory expansion. Diagram by author.

640 ACRES - 1 SQUARE MILE



WHOLE SECTION

IMAGE 01 |

IMAGE 01 | Section division of a township in the Northwest Territory expansion. Diagram by author.

URBAN CENTERS COMPARISON |

NEW YORK CITY, NEW YORK

Population: 8,550,405

Density: 28,052.5/sq mi

Land Area: 304.8 sq mi



IMAGE 01 |

LOS ANGELES, CALIFORNIA

Population: 4,030,904

Density: 8,282/sq mi

Land Area: 469 sq mi



IMAGE 02 |

NEW ORLEANS, LOUISIANA

Population: 389,617

Density: 2,274/sq mi

Land Area: 169 sq mi

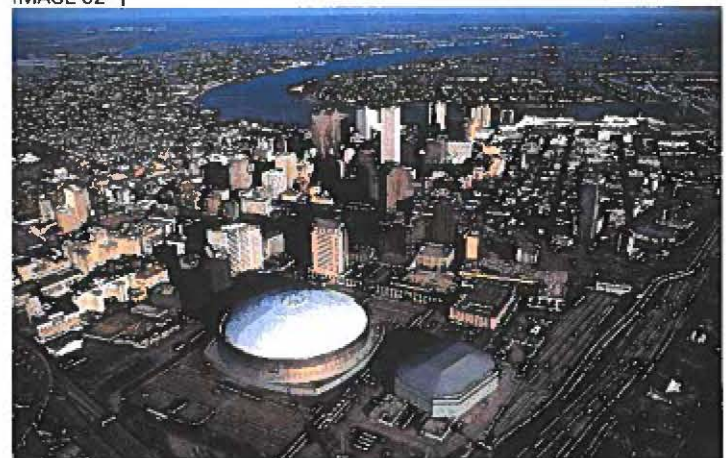


IMAGE 03 |

Fig. 01 | <http://www.nationalgeographic.com/new-york-city/skyline-tallest-midtown-manhattan/article.html>

Fig. 02 | <https://paulac.org/>

Fig. 03 | <http://www.airphotona.com/image.asp?imageid=16924>

CHICAGO, ILLINOIS

Population: 2,695,598

Density: 11,864.4/sq mi

Land Area: 227.3 sq mi



IMAGE 01 |

PHILADELPHIA, PENNSYLVANIA

Population: 1,567,448

Density: 11,635.3/sq mi

Land Area: 134.1 sq mi



IMAGE 02 |

GARDEN CITY, KANSAS

Population: 26,658

Density: 3,000/sq mi

Land Area: 8.82 sq mi

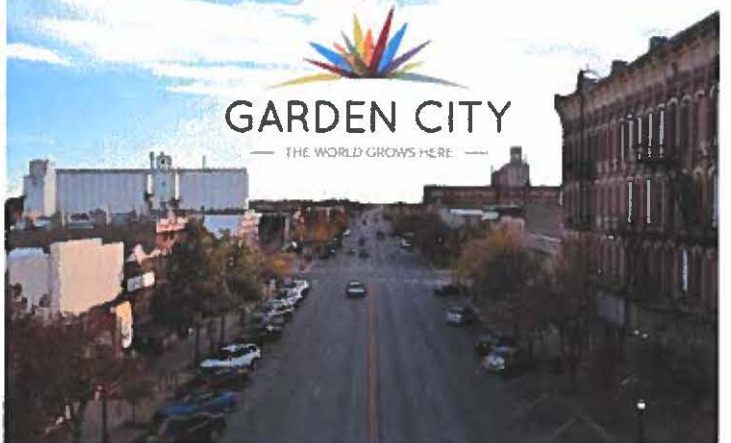


IMAGE 03 |

Fig. 01 | <http://www.chicagosouthloophotel.com/>

Fig. 02 | <http://philadelphiaft.org/>

Fig. 03 | <http://www.wibnewsnow.com/garden-city-gives-initial-ok-to-water-park/>

DIAGRAMMING AGRICULTURE |



IMAGE 01 |

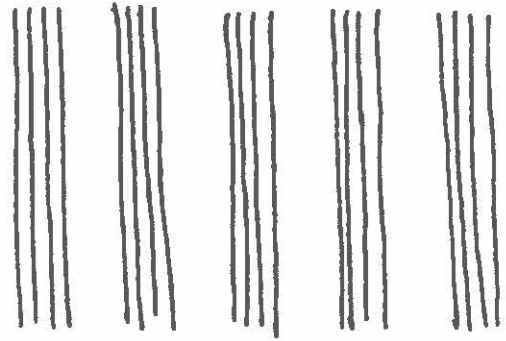


IMAGE 02 |

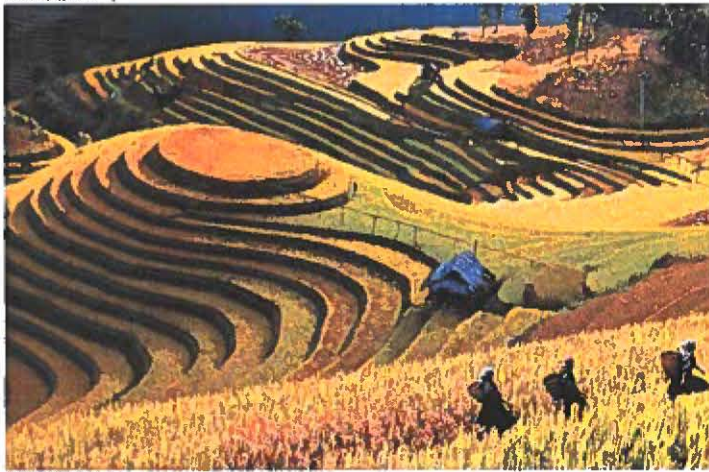


IMAGE 03 |

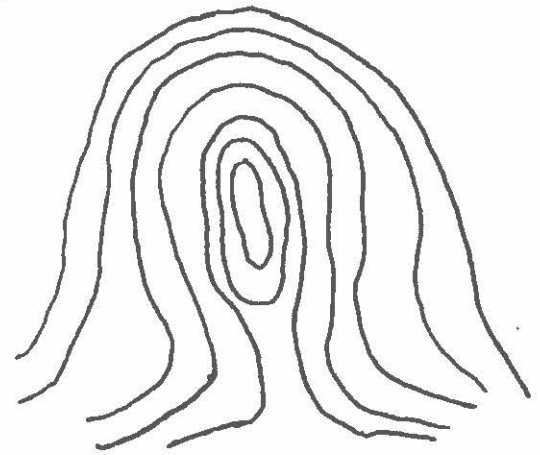


IMAGE 04 |



IMAGE 05 |

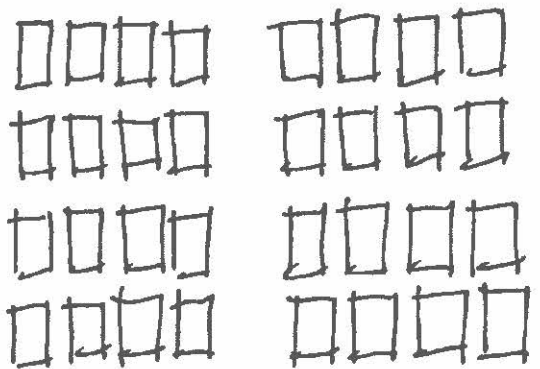


IMAGE 06 |

Fig. 01 | <https://www.organiccenter.org/response-to-organic-farming-is-not-sustainable/>

Fig. 03 | <https://www.pata.org/top-10-places-for-adventure-travel-in-vietnam/>

Fig. 05 | <https://www.growfoodgrowhope.com/2010/07/last-summer-meeting-at-community.html>

Fig. 02 | Diagram by author.

Fig. 04 | Diagram by author.

Fig. 06 | Diagram by author.



IMAGE 01 |

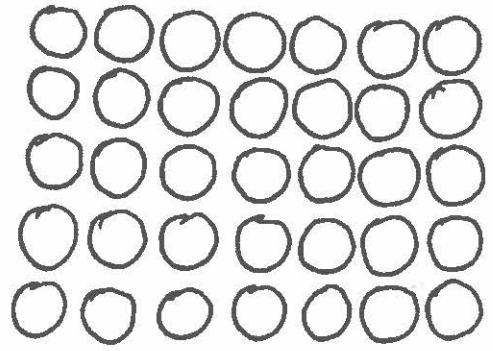


IMAGE 02 |

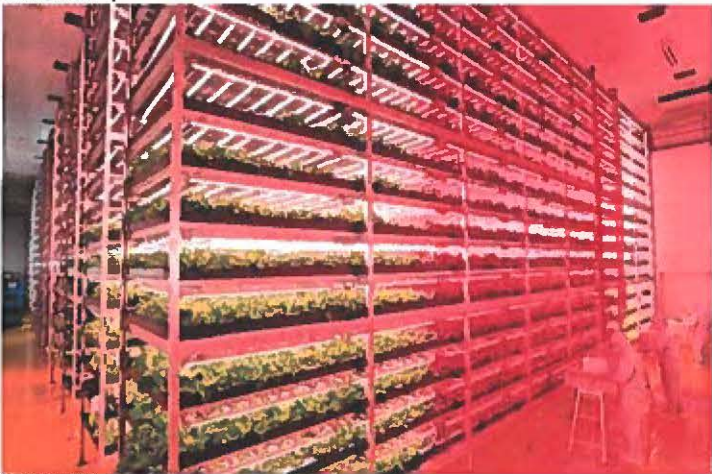


IMAGE 03 |

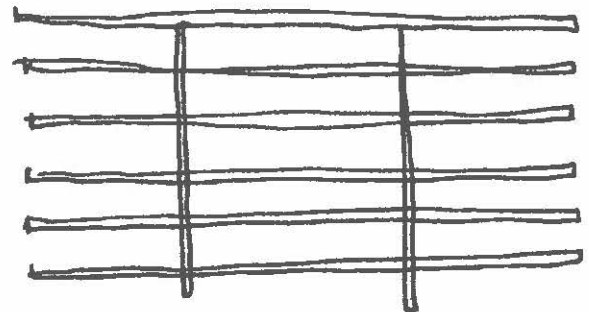


IMAGE 04 |



IMAGE 05 |

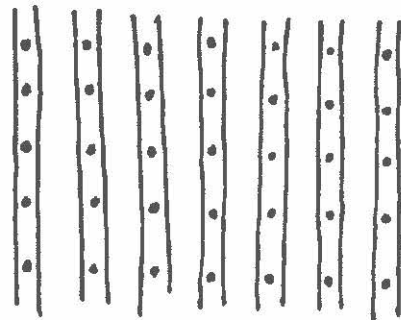


IMAGE 06 |

Fig. 01 | www.everyoneforever.com

Fig. 03 | <https://www.indoorfarmsamerica.com/>

Fig. 05 | <https://my.youthbuild.org/my/education/construction-integration>

Fig. 02 | *Diagram by author.*

Fig. 04 | *Diagram by author.*

Fig. 06 | *Diagram by author.*

“We know our collective future depends on our ability to have a planet - and a city - that can sustain life with clean air, clean water, nourishing food, and stable weather patterns.”

MAYOR BETSY HODGES | MINNEAPOLIS, MN

SPRING SITE

Site Criteria

Analysis

City Comparison

AGRICULTURAL SITE CRITERIA |

URBAN AREA |

50,000 people or more (US Census Bureau)

CLIMATE ZONE |

2A | 3A, 3B, 3C | 4A, 4B, 4C | 5A

SOIL TYPE / ORDER |

mollisol, alfisol, andisol, utisol, oxisol

PLANT HARDINESS |

-15F - 50F (based on average annual minimum
winter temperature)

AVERAGE ANNUAL RAINFALL |

25-70 inches/year

TEST CITIES |

CITY	SOIL	RAIN	CLIMATE	PLANT HARDINESS
Atlanta	✓	✓	✓	✓
Chicago	✓	✓	✓	✓
Boston	X	✓	✓	✓
Detroit	✓	✓	✓	✓
Los Angeles	✓	X	✓	✓
New York	X	✓	✓	✓
Washington DC	✓	✓	✓	✓
Nashville	✓	✓	✓	✓
New Orleans	X	✓	✓	✓

UNITED STATES ANALYSIS MAPS |

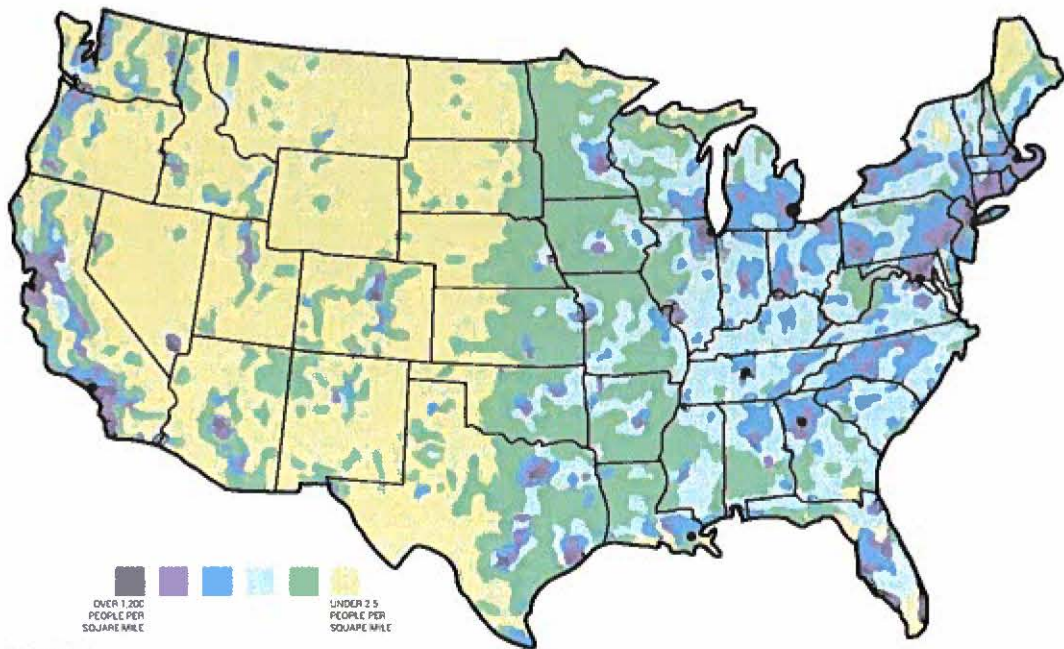


FIG. 01 |

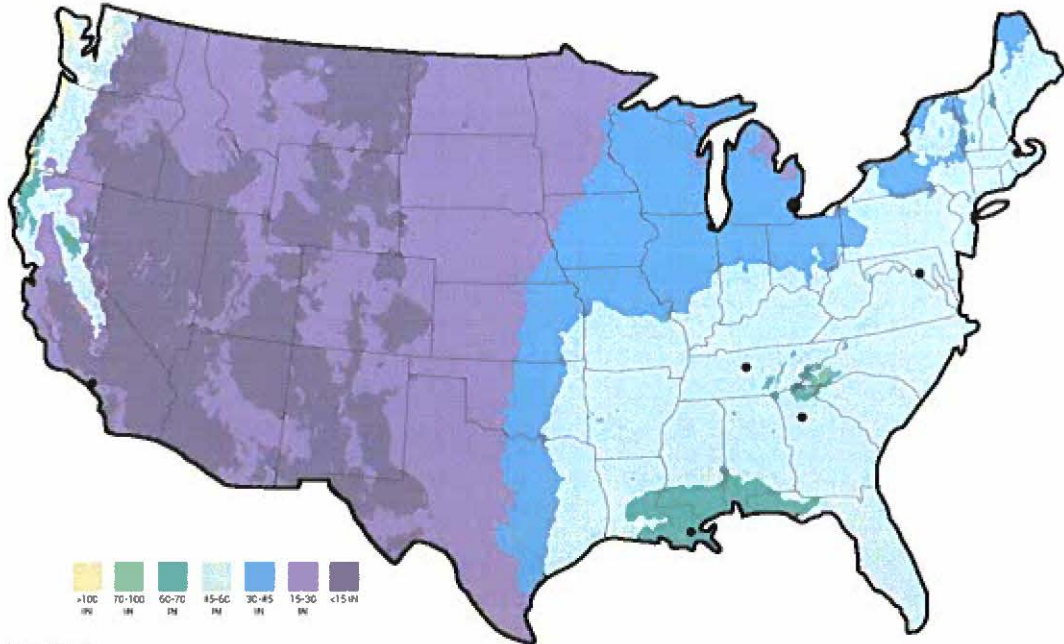


FIG. 02 |

FIG. 01 | *Population Density. Diagram by author.*

FIG. 02 | *Average Annual Precipitation. Diagram by author.*

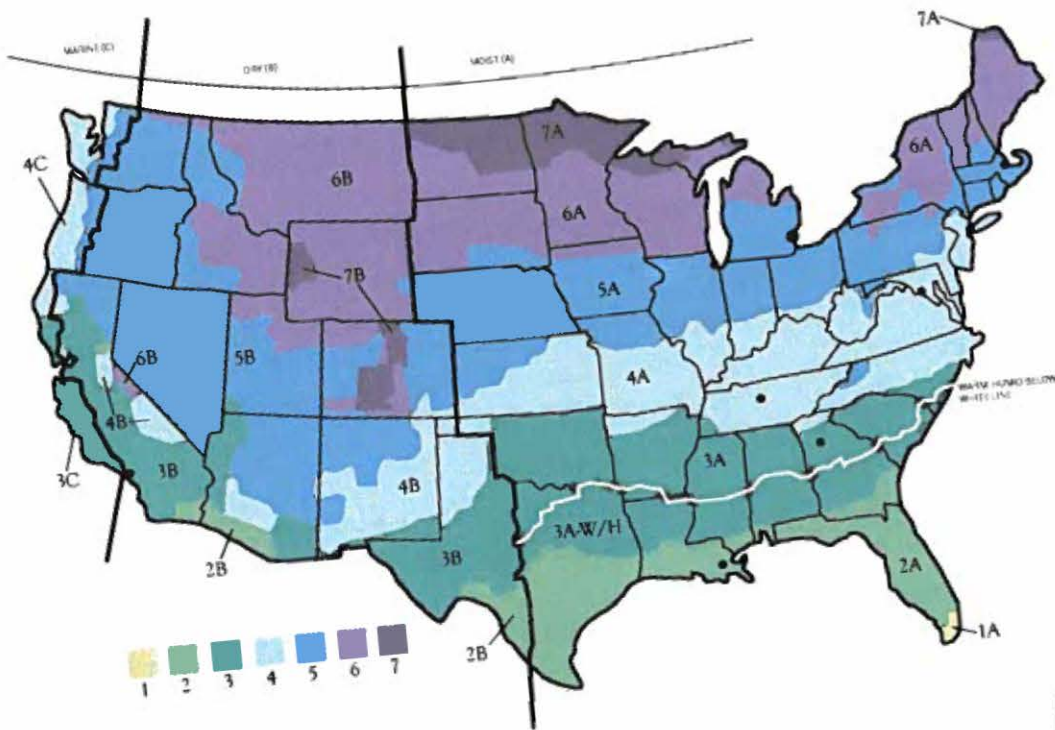


FIG. 01 |

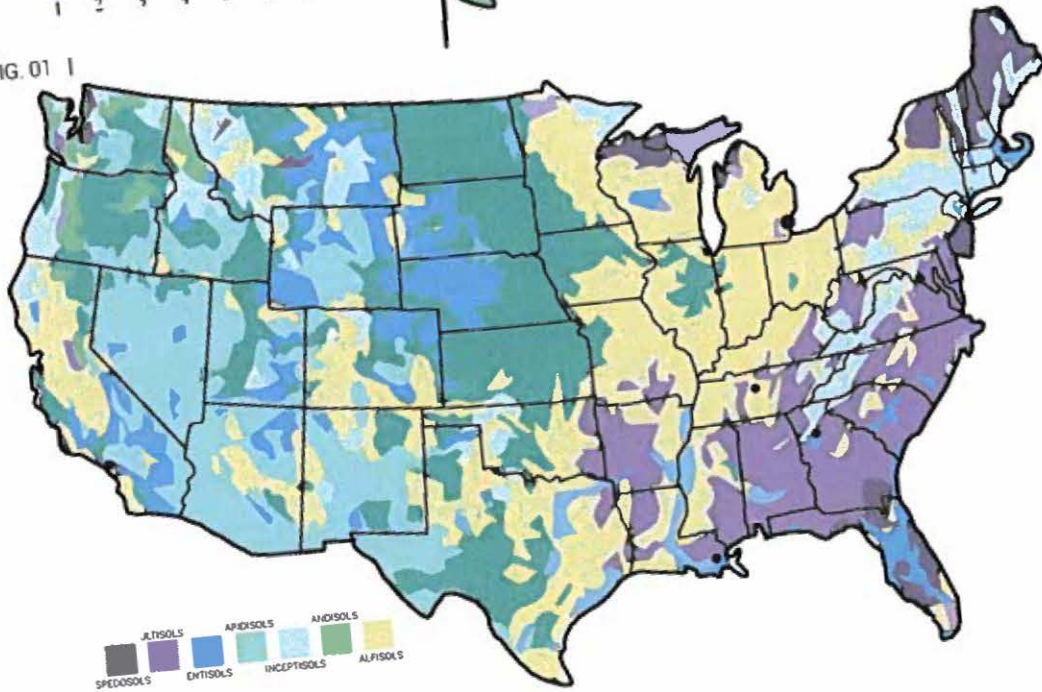


FIG. 02 |

FIG. 01 | Climate Zones. Diagram by author.
FIG. 02 | Soil Orders. Diagram by author.

CITY COMPARISON |

CITY	POPULATION DENSITY LAND AREA	OBESITY RATE	VACANT LAND
Atlanta	463,878 (2015) 3,360 ppl/sq mi 133.2 sq mi	metro area: 28.7 % city: 38.9% #11 fastest cities diabetes: 11.6% (10th in nation)	7%
Chicago	2,720,546 (2015) 11,864.4 ppl/sq mi 227.3 sq mi	metro area: 27.0 % city: 35.2% #67 fastest cities	.05 sq mi .2%
Detroit	677,116 (2015) 5,142 ppl/sq mi 138.75 sq mi	metro area: 33.1 %	40 sq mi 28.8%
Nashville	678,889 (2015) 1,300 ppl/sq mi 525.94 sq mi	metro area: 24.7 % city: 37.8% #19 fastest cities	24.4%

DESTINCT NEIGHBORHOODS	NOTES	FOOD DESSERTS
✓	14.85% of workers use public transit	19% food insecure
✓	Chicago Urban Agriculture Mapping Project Public transit ✓ #7: 28% without cars	22% food insecure
✓	#8: 26% w/o cars	33% live more than 1 mile from supermarket/large grocery
✓		3% food insecure

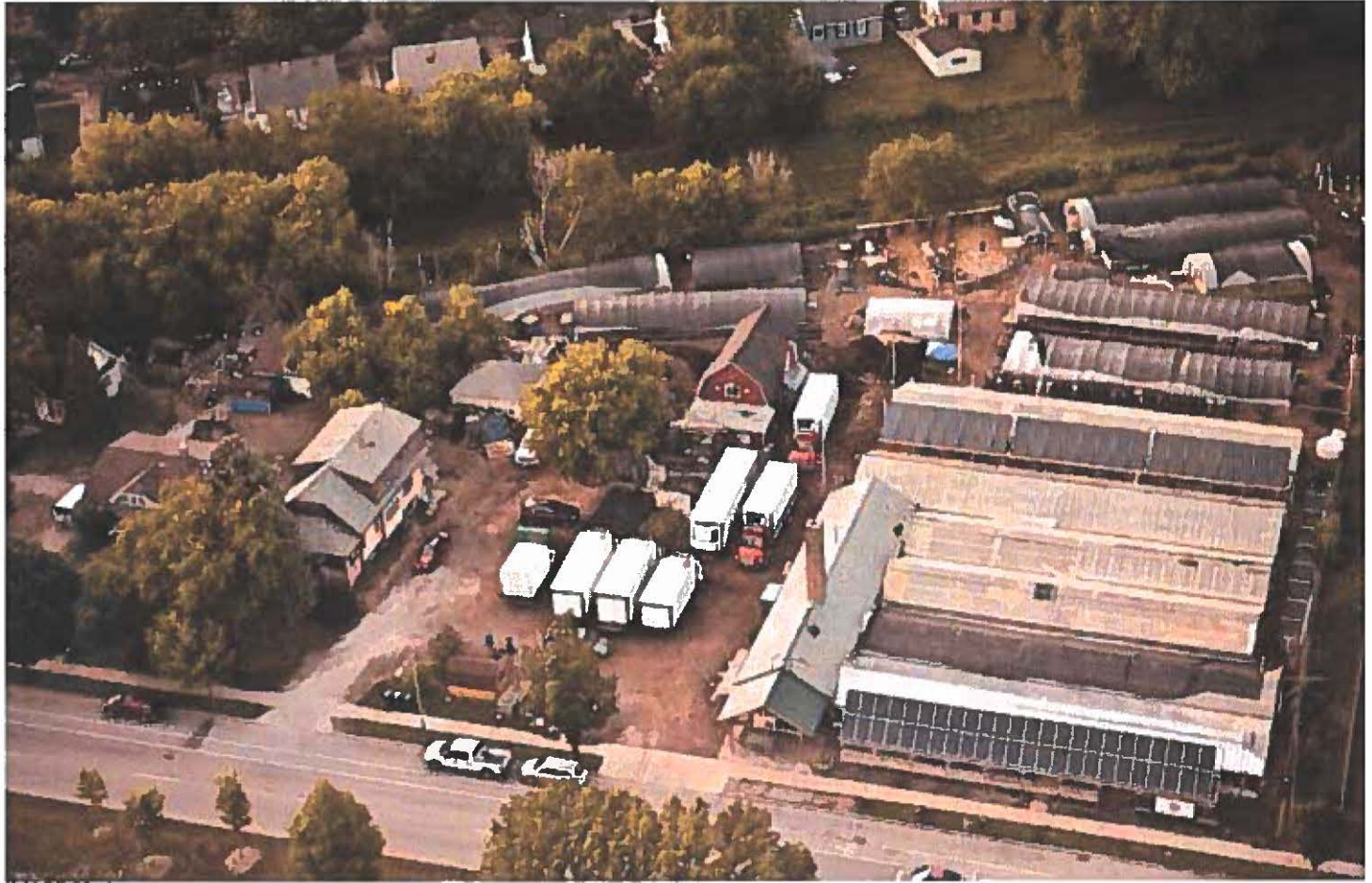


IMAGE 01 |

IMAGE 01 | Overhead view of Growing Power. Image from <http://www.growingpower.org/>

SPRING PRECEDENT ANALYSIS

Growing Power

GROWING POWER URBAN FARM |



IMG 01 |



IMG 02 |

IMAGE 01 | Growing Power internship program members. Image from <http://www.growingpower.org/>

IMAGE 02 | Growing beds and aquaponics at Growing Power. Image from <http://www.growingpower.org/>

MILWAUKEE, WISCONSIN

3 acres of land

Produces 40 tons of food per year for
about 10,000 people

150 different crops grown

Crop production, aquaponics,
vermicomposting, bee keeping, animal
husbandry



IMG 01 |

IMAGE 01 | Growing Power internship program members. Image
from <http://www.growingpower.org/>



SPRING DESIGN PROPOSAL

Site Selection

Site History

Program

Final Drawings

Final Board Layout

SITE SELECTION |

DETROIT, MICHIGAN

POPULATION | 677,116 (2015)

DENSITY | 5,142 /sq mi

AREA | 138.75 sq mi

OBESITY RATE | 33.1 % (metro area)

VACANT LAND | 40 sq mi (28.8%)

FOOD DESERT | 33% live more than
1 mile from supermarket/large grocery

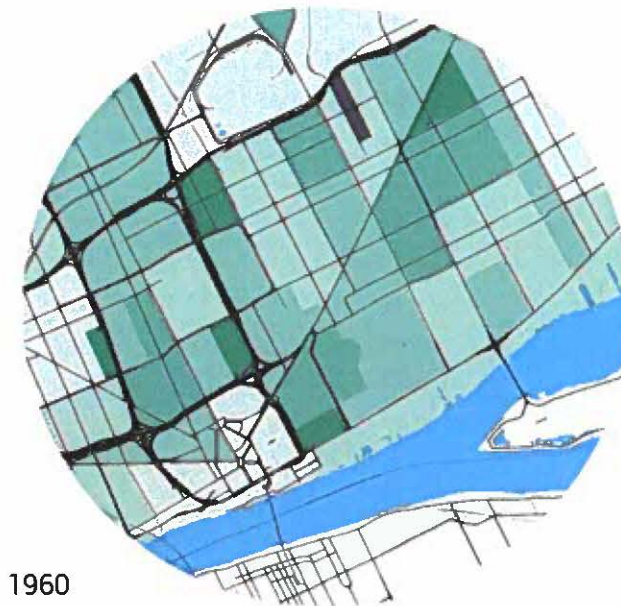
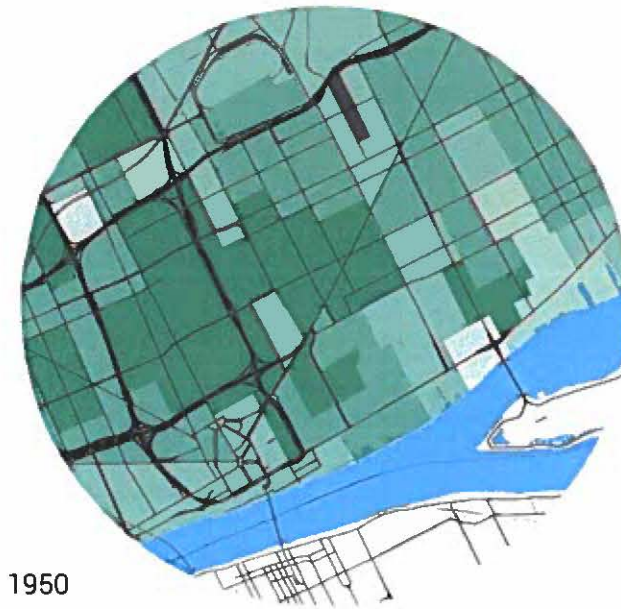
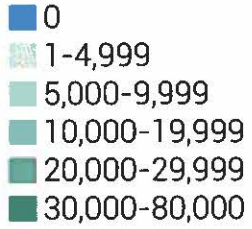


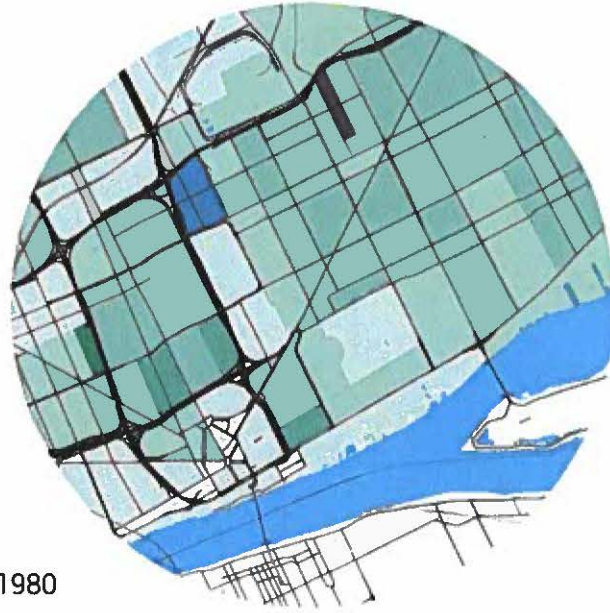
FIG. 01 |

FIG. 01 | Site selection: Detroit, Michigan. Diagram by author.

POPULATION DENSITY | Detroit, Michigan

PERSONS PER
SQUARE MILE





1980



2000



2010

PACKARD AUTOMOTIVE PLANT HISTORY |

1903 Packard Automotive Company moves its headquarters to Detroit.

1904 Julius Kahn designs a trussed concrete steel re-bar reinforcement system for larger, more open and safer factory buildings. This becomes the standard for the automotive industry across America.

1910 With four million square feet and 40,000 workers, the Packard Car Company has the largest auto plant in the US.

1920s Packard transitioned from hand assembly to an assembly line.

1939 Bridge was built between north and south halves of the Packard Plant.

1942 Car production is halted in order to support the WWII effort.

1956 Packard Car Company goes out of business with last worker laid off two years later.

1903-1958 | PACKARD PLANT

1960 Packard Properties of Illinois takes out mortgage and leases parts of the plant.

1960-1987 | PACKARD PROPERTIES OF ILLINOIS

1987 Bioresources purchases the old Packard Plant.

1997 Bioresources files for bankruptcy turning the property over to the city of Detroit.

1987-1997 | BIORESOURCES

1999 City of Detroit prepares to
demolish Packard Plant.

1998 | CITY OF DETROIT

1999 OPPMAC sues the City of
Detroit.

2000 OPPMAC acquires
property by paying back taxes.

2006 Dominic Cristini, head of
OPPMAC, sentenced to prison
for distributing drugs.

2010 Final tenants vacate
Packard Plant, leaving
the property completely
abandoned.

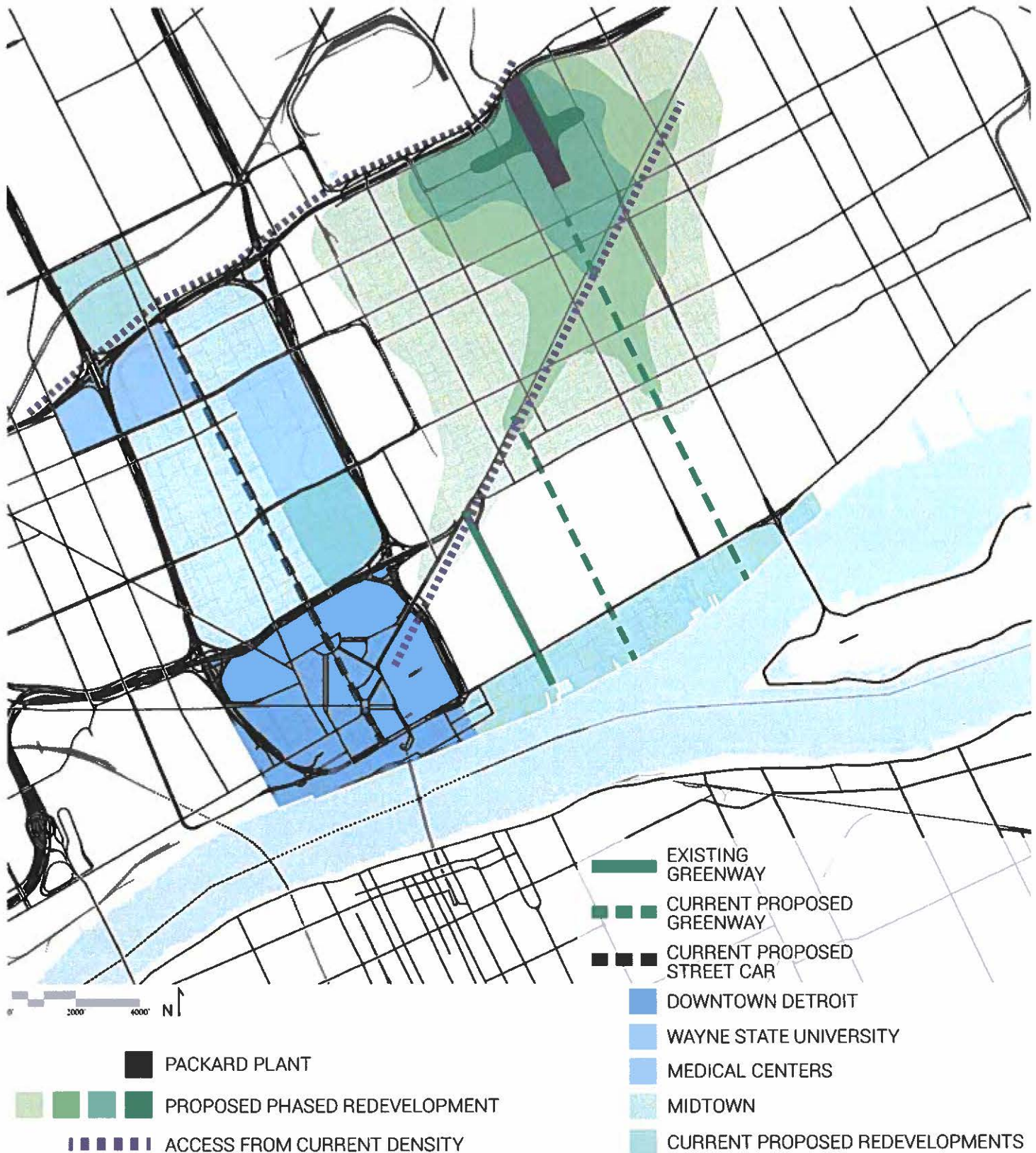
1999-2012 | OPPMAC

2013 Wayne County reclaims
property, putting it up for
auction.

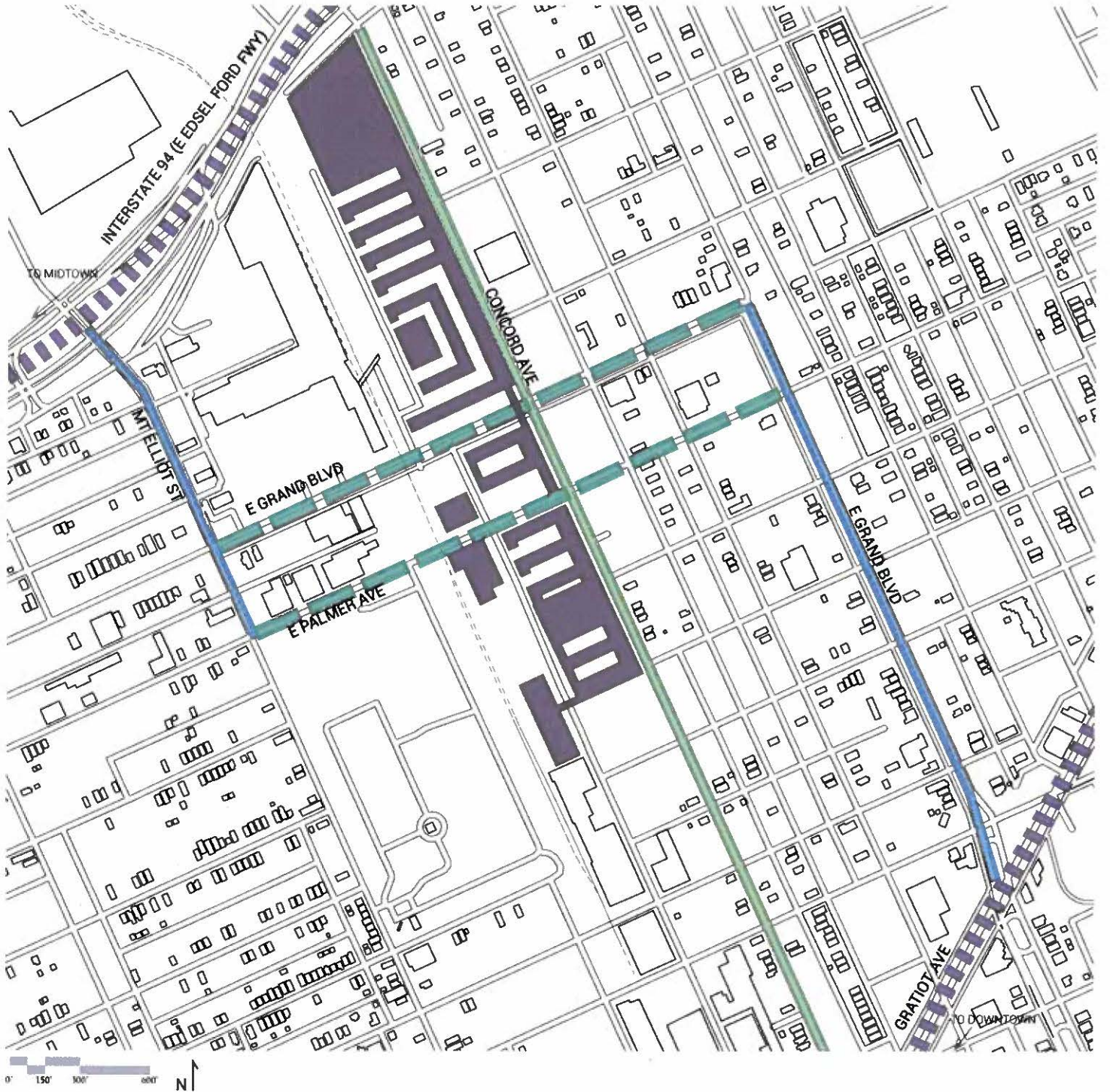
2013 Ferdinando Palazuelo
of Arte Express Detroit, LLC
purchases Packard Plant for
\$450,000 with a plan for a
mixed-use redevelopment.

2013-PRESENT | ARTE EXPRESS DETROIT, LLC

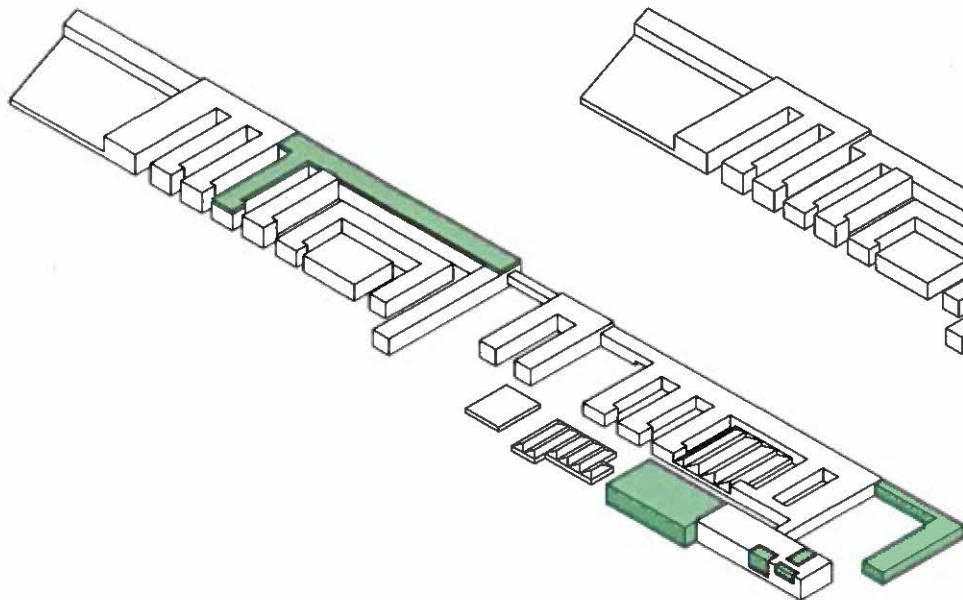
REGIONAL CONNECTIONS |



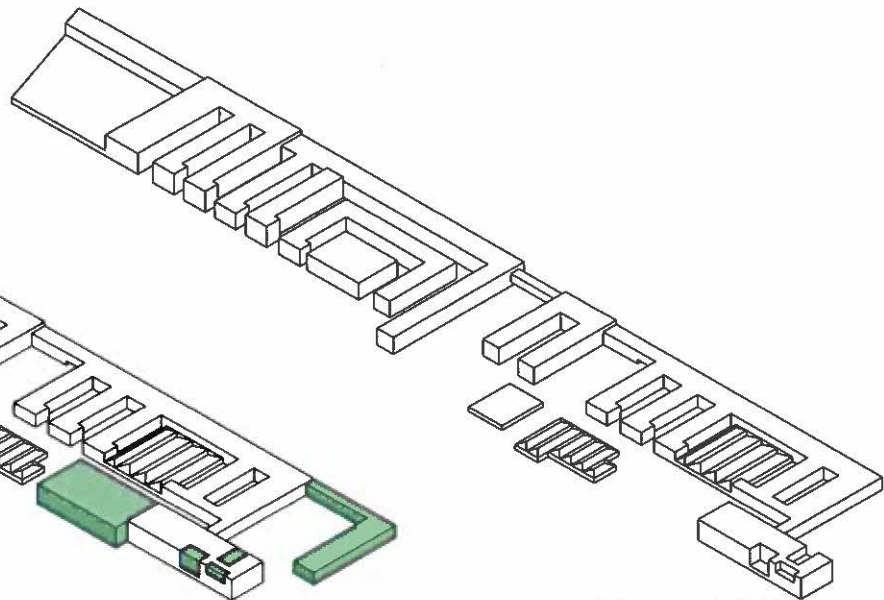
NEIGHBORHOOD CONNECTIONS |



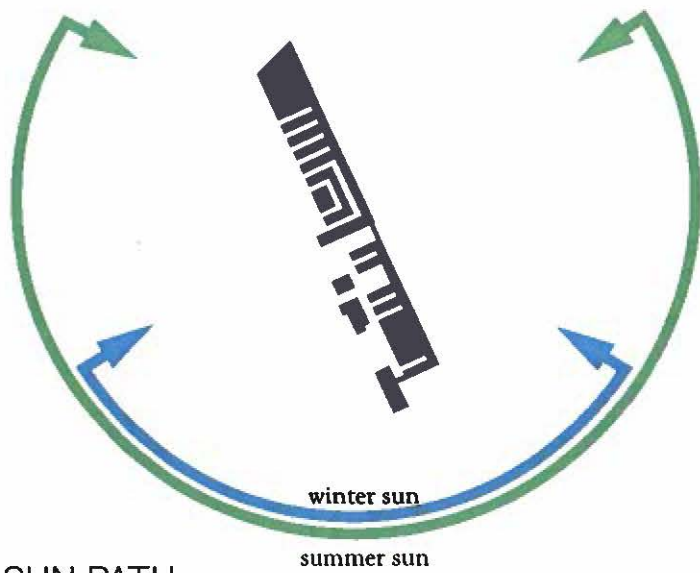
PACKARD PLANT MASSING |



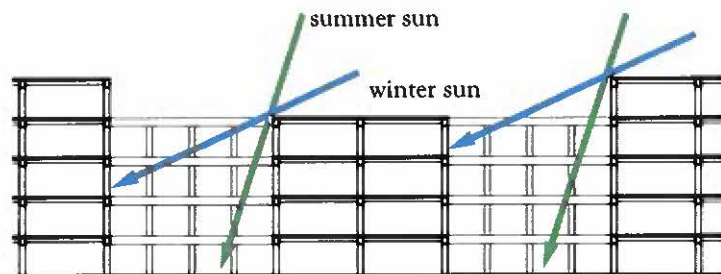
COMPLETE PACKARD PLANT MASSING
green areas in ruins or destroyed



CURRENT CONDITIONS

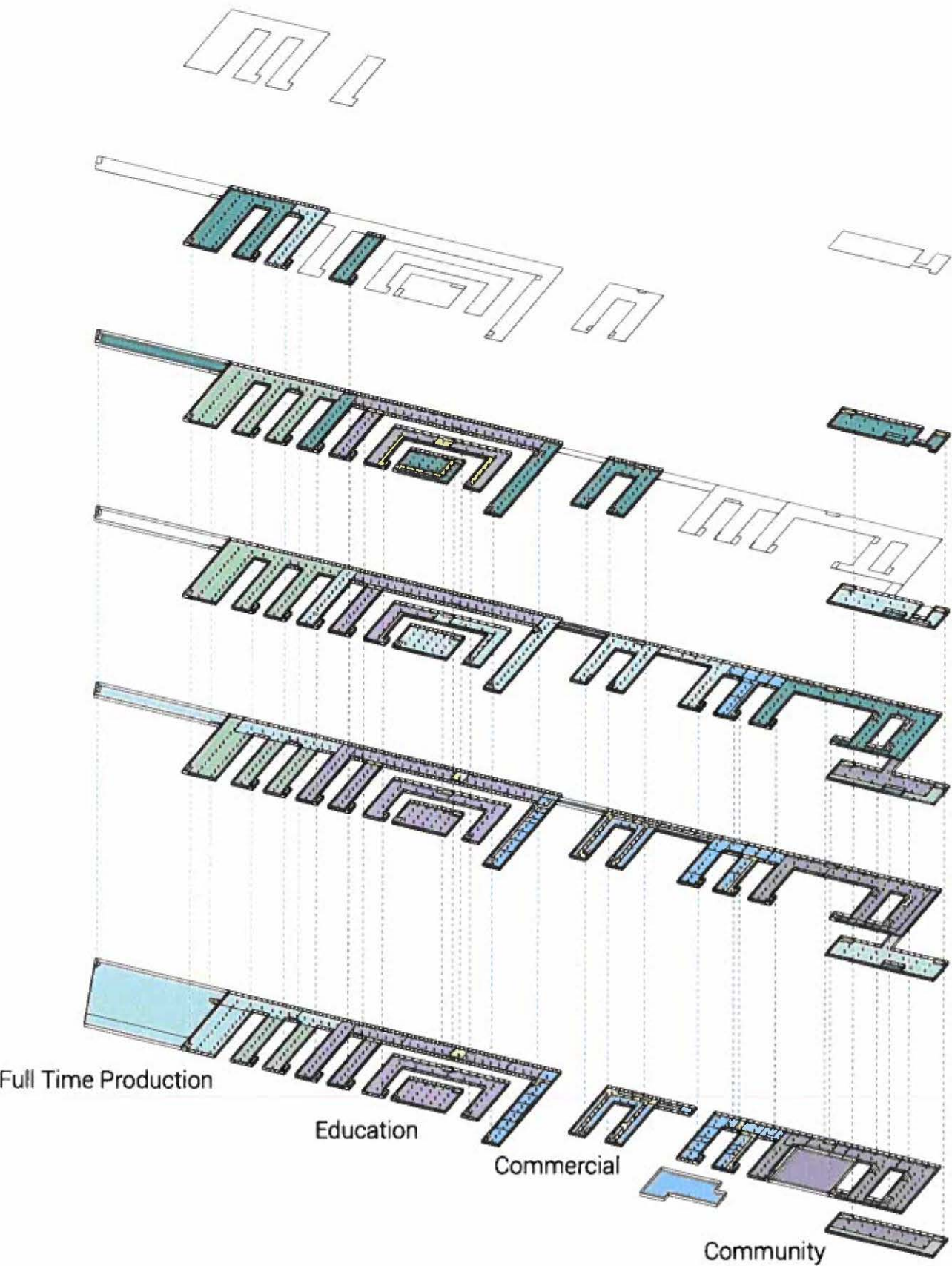


SUN PATH



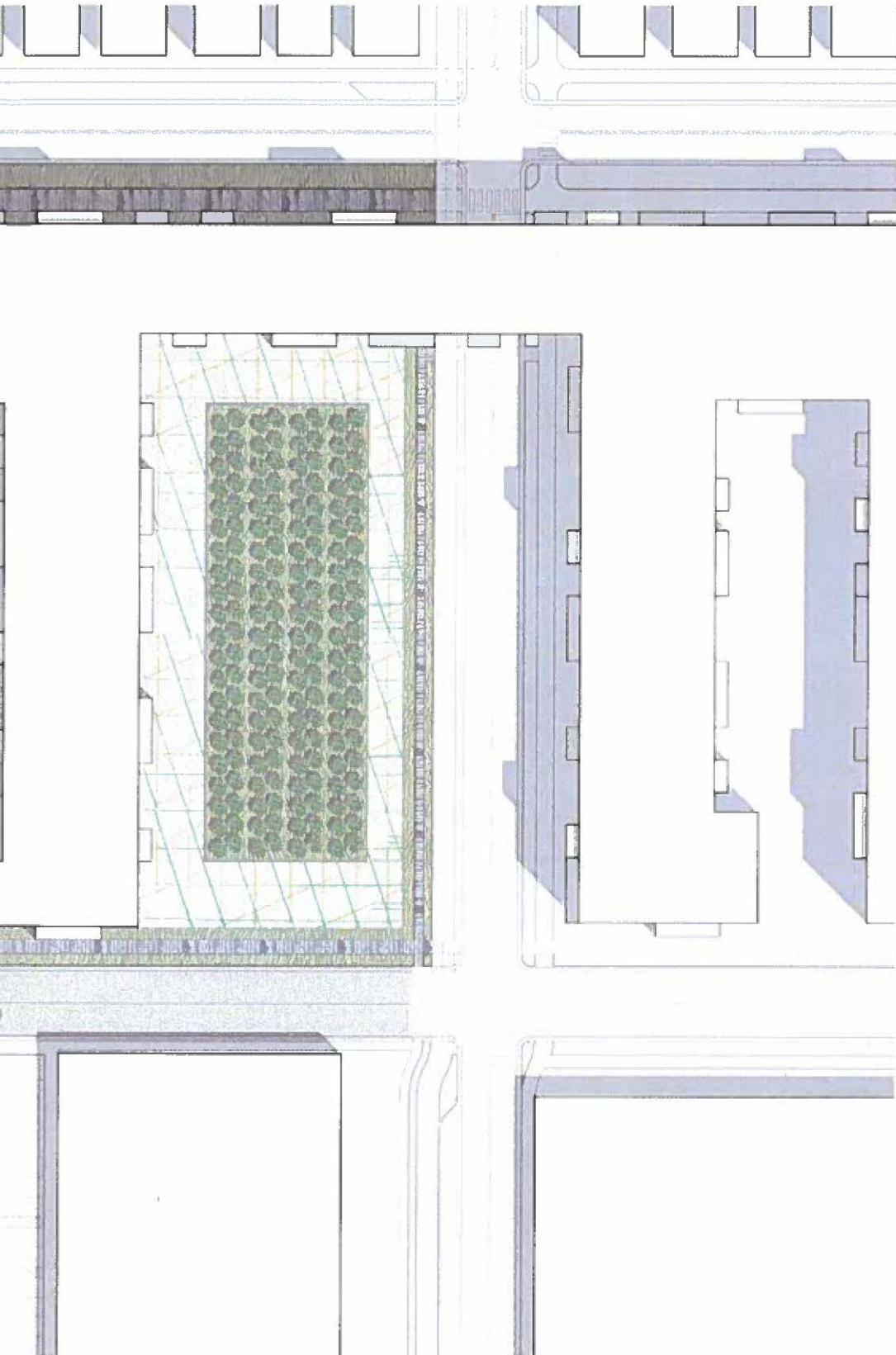
SUN ANGLES

PROPOSED FLOOR PLANS |



COMMERCIAL ZONE MASTER PLAN |





EXISTING PACKARD PLANT IMAGES |

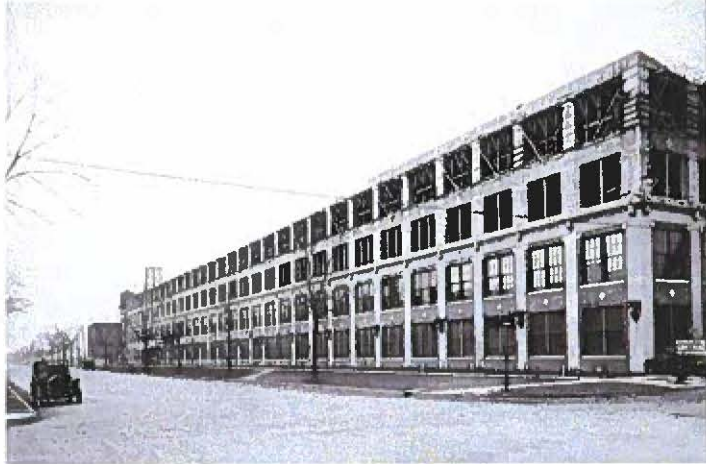


IMAGE 01 |



IMAGE 02 |



IMAGE 03 |



IMAGE 04 |



IMAGE 05 |



IMAGE 06 |

Fig. 01 | <http://packardplantproject.com/history/index.html>

Fig. 03 | www.twistedsifter.com

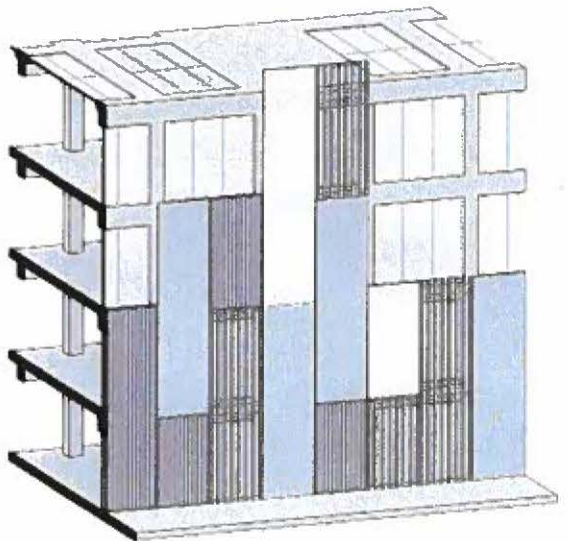
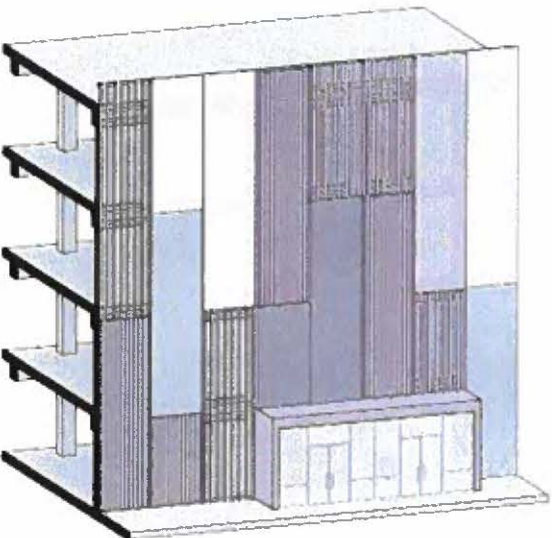
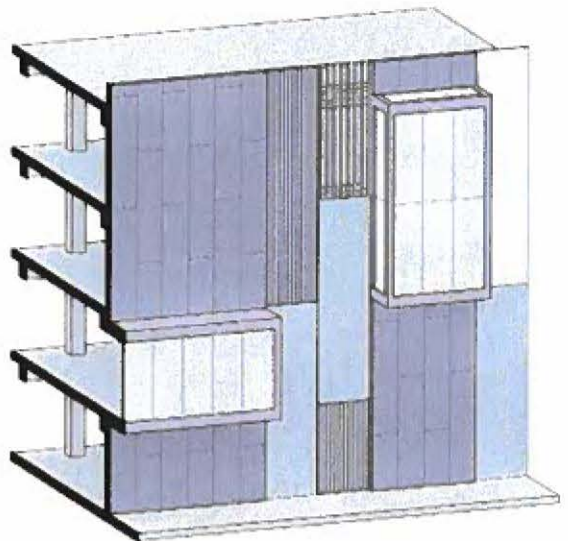
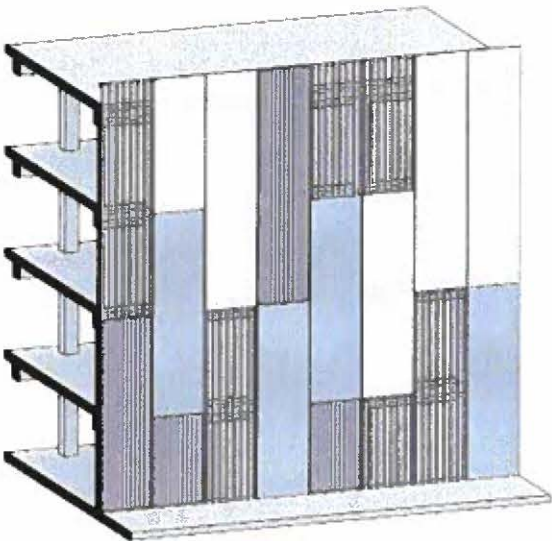
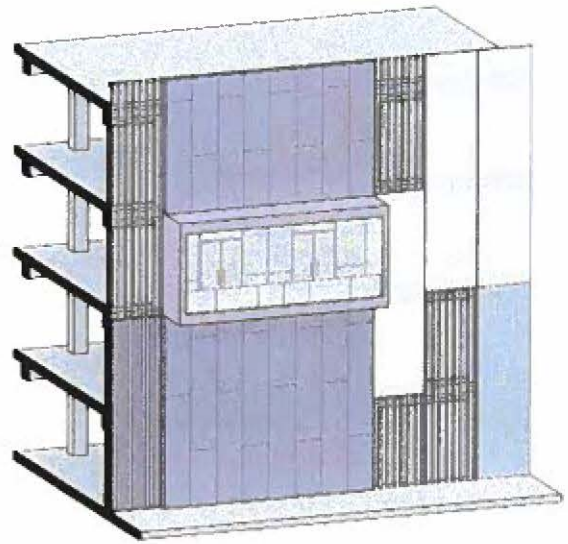
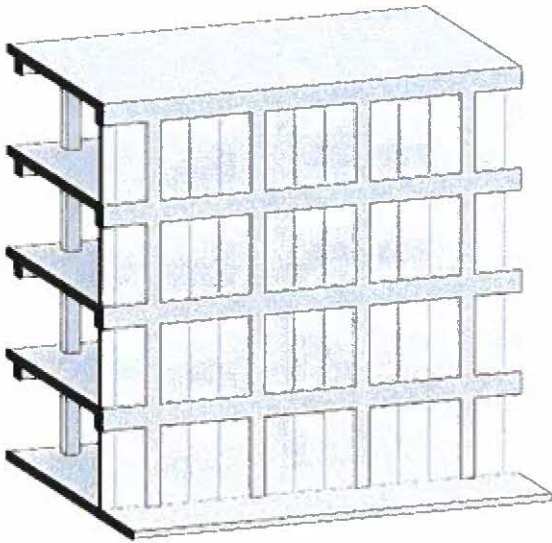
Fig. 05 | <http://packardplantproject.com/history/index.html>

Fig. 02 | <http://packardplantproject.com/history/index.html>

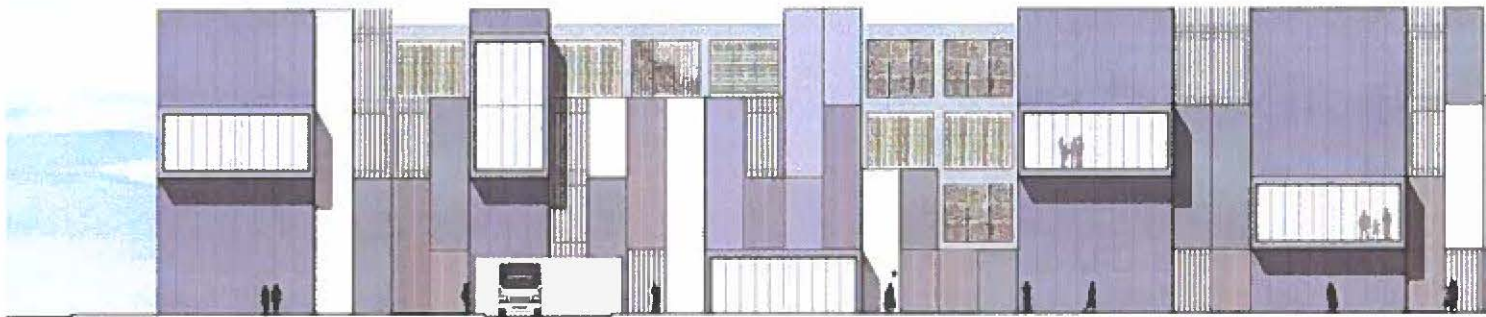
Fig. 04 | <http://jalopnik.com/5110995/the-runs-of-detroit-industry-five-former-factories>

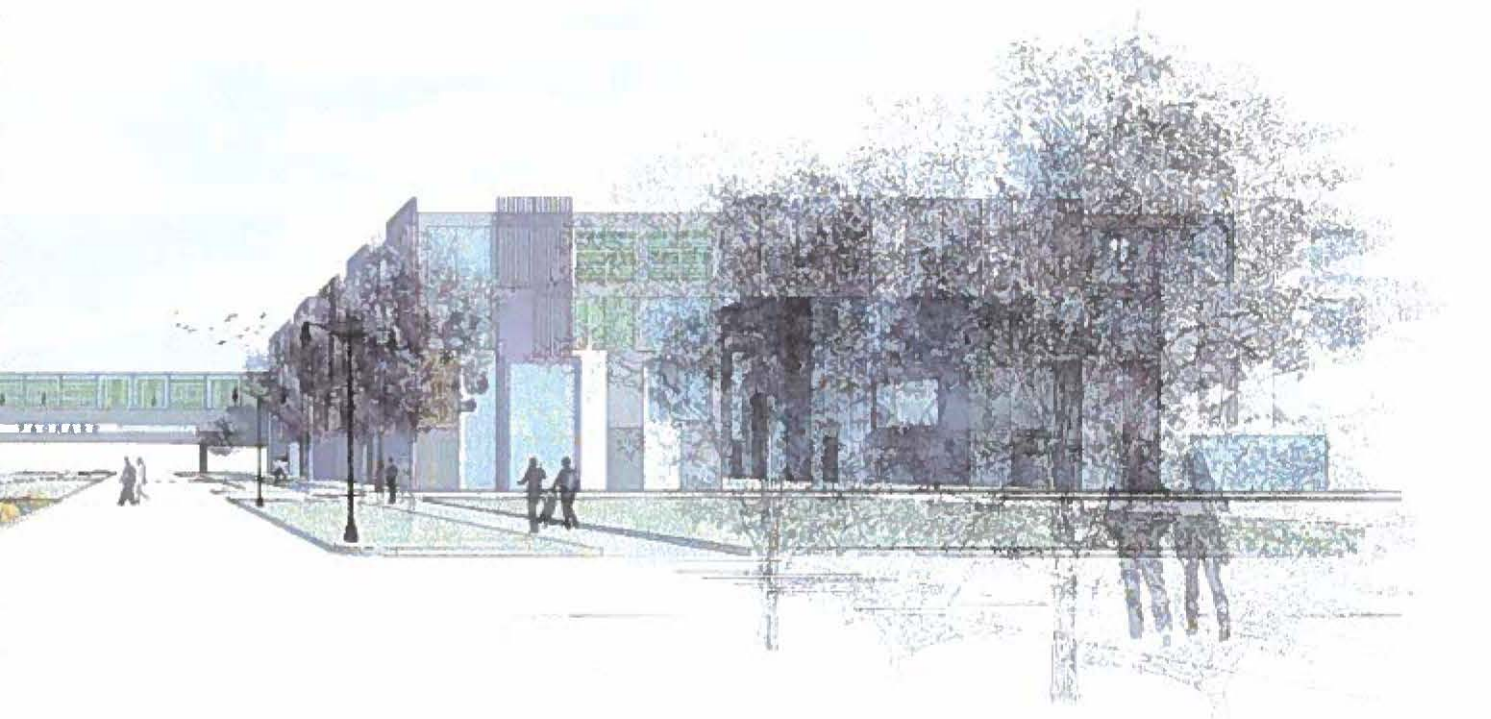
Fig. 06 | <http://packardplantproject.com/history/index.html>

FACADE OPERATIONS |



E GRAND BLVD BRIDGE PERSPECTIVE AND SECTION |

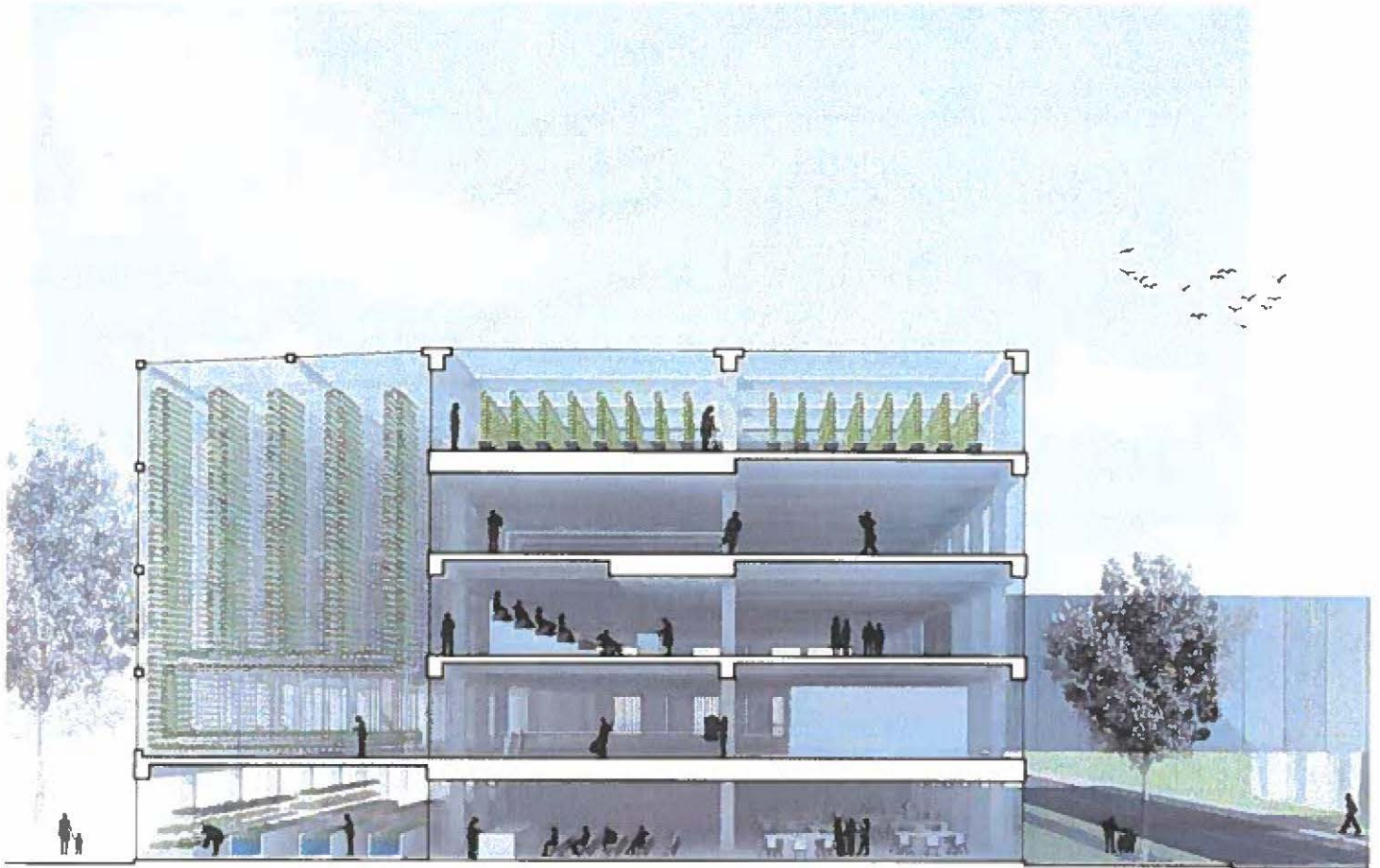




EDUCATION SECTION PERSPECTIVE |

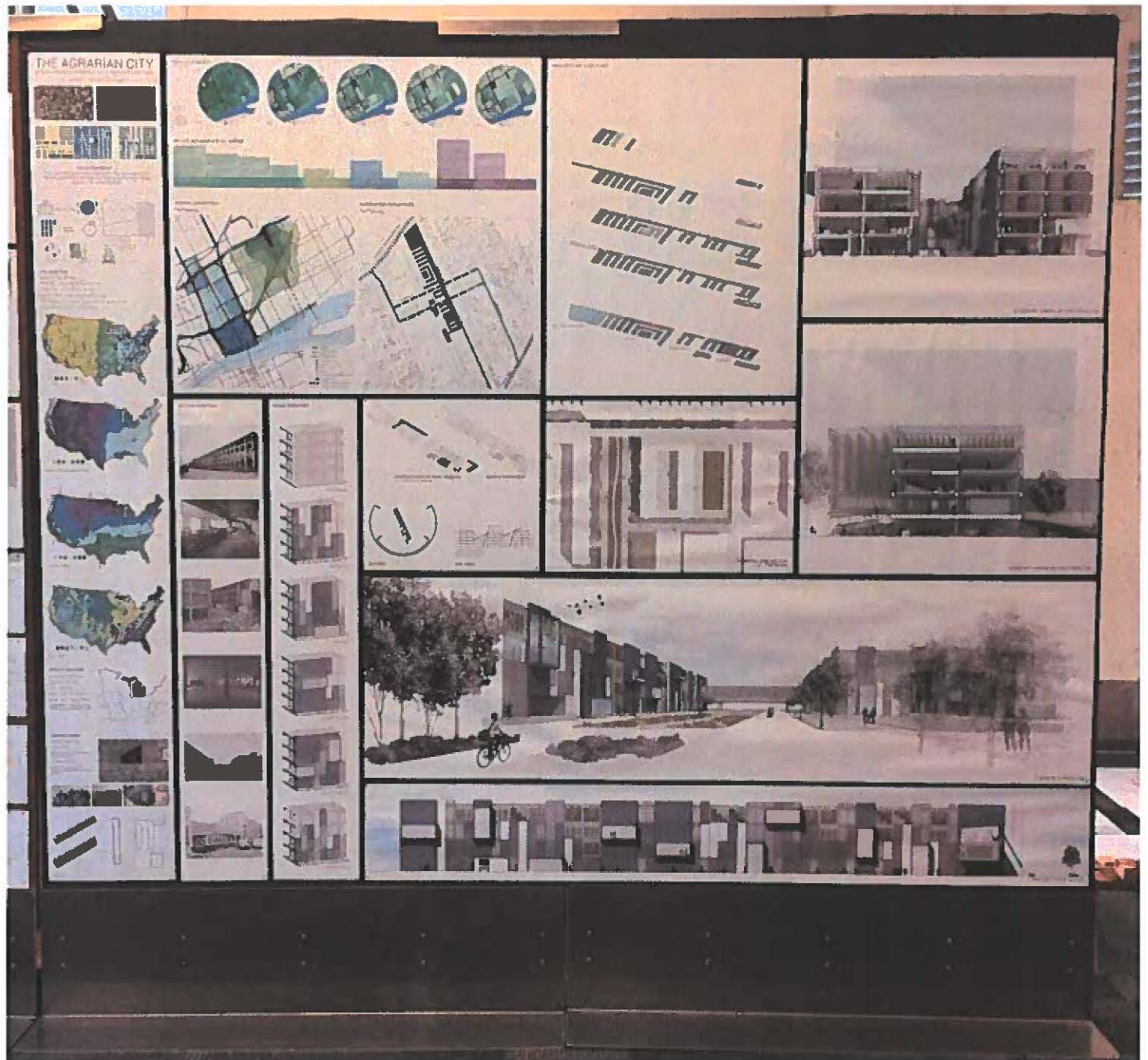


COMMUNITY SECTION PERSPECTIVE |





FINAL BOARD IMAGE |



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