THE NEW FOOD-TECH CITY:
Adapting Chicago's Post-Stockyard Urbanism

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ABSTRACT

This thesis examines the latent potential of Chicago's former Union Stock Yard, which consequentially draws attention to the polarities of industrial food production. The Union Stock Yard was once symbolic of an era where urban progress was equated with efficiency and growth. Today, the site is facing an identity crisis; it is characterized predominantly by underutilized warehousing, however, innovative closed-loop food producers (such as The Plant and the Iron Street Farm) are indicative of an emerging narrative that focuses on sustainability, health, and taste.

This thesis offers a design proposal for a new food technologies cluster that includes multi-functional programmatic components for: research, production, and marketing (as well as new residential communities.) The goal is to formulate a design solution that selectively packages existing elements (river, warehouses, workforce) with new buildings, infrastructure, and public spaces – to build a flexible urban network that will reconnect to the larger square-mile Chicago grid. To do so the study draws upon original analytical studies and numerous precedents that convert decommissioned industrial land. The design product will provide reflection upon the past as it presents a scenario for the future.

Thesis Advisor:
Michael Dennis
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INTRODUCTION

This thesis proposal stems from the basic notion that food quality (which is often perceived as the domain of the rural sector) has everything to do with urbanism. To illustrate this hypothesis this paper begins by outlining the circumstances that brought about a collision of technology and mass food production in the city by using the Union Stock Yard as a historical case study. This is followed by a description of the conditions that lead to the dissolution of the stockyards. Next, a depiction and analysis of what the neighborhood is like at the present will provide understanding of how we have arrived at this crucial moment. Finally, this thesis presents a project envisioning the future – conceived around a lifestyle that is appealing because people feel more vibrant and healthful.

Throughout history human attitudes towards plant and animal consumption have been flux. In opening chapters of The City in History Lewis Mumford describes how nutrition moved beyond mere survival because of the communal efforts of individuals as far back as the Mesolithic period.[1] One principle of the proposal for a New Food-Tech City is the rediscovery of lifestyle communal participation (growing food and mercantile exchanges.) The Union Stock Yards can be understood as an example of modern technological determinism – such that mechanized practices have led to the current food consumption paradigm of set prices, on the go eating, and self-indulgence.

For better or worse, cities are part of the problem and part of the solution. At this moment, passivity is waning, at the grassroots level and new companies are profitably growing food (green food, slow-food) in the city. There is hope for the future so long as there is recognition that the food-supply is something urbanites can influence if they chose to assert an activist role.

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[1] Mumford, Lewis. The City in History: Its Origins Its Transformation and Its Prospects, 10-29.

1.

CHICAGO'S HISTORICAL FOOD-TECH CITY:

The Union Stockyard

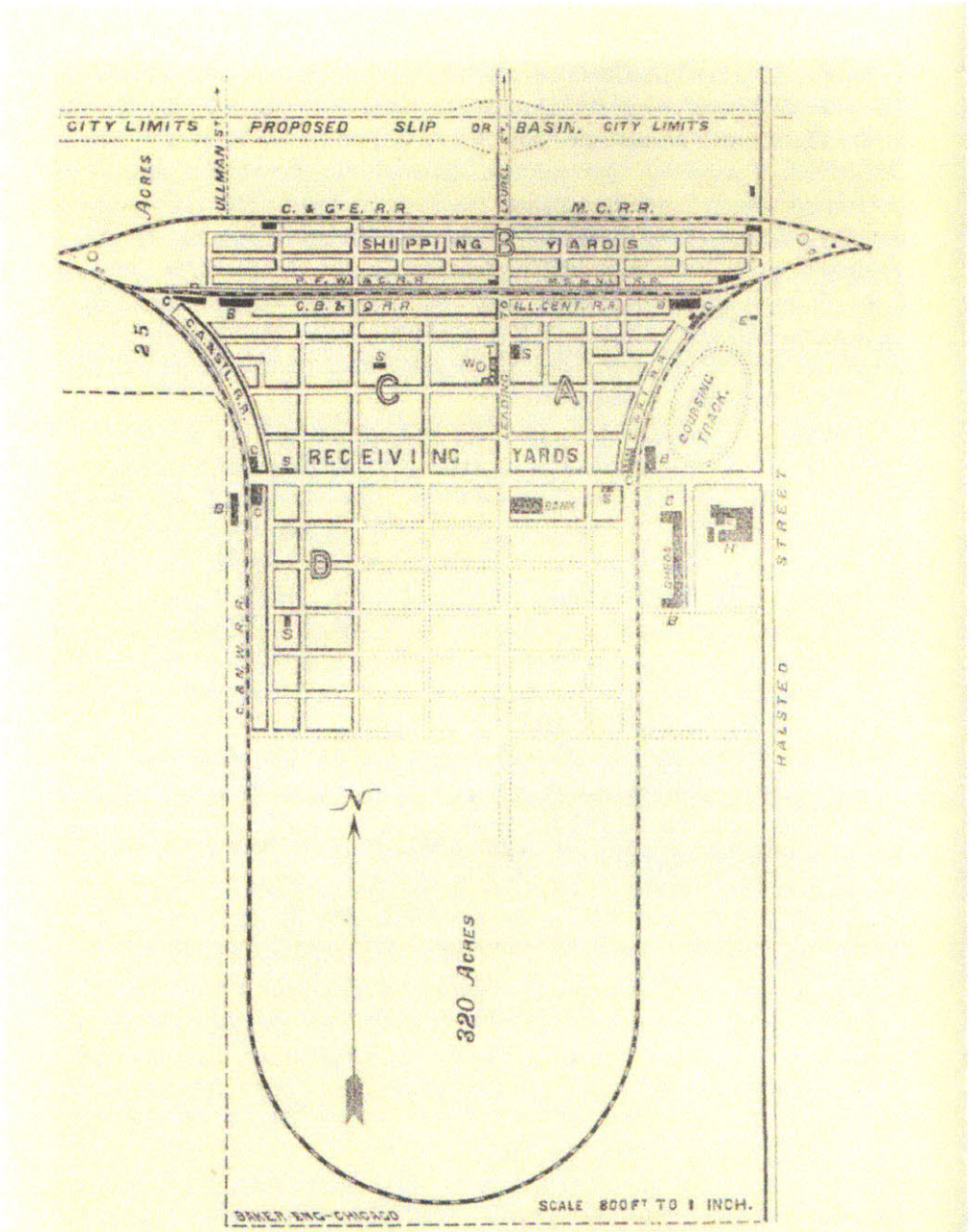
The Union Stock Yard development can be understood as a catalyst for the meat-centric food legacy in Chicago, and, arguably, the United States and beyond. The Stock Yard opened on Christmas Day 1865; by 1870 it processed 2 million animals yearly; by 1890 the number had risen to 9 million.

This section will examine the role of stockyard development during Chicago's rise to prominence. During the nineteenth century Chicago stockyards brought commotion in the streets, stenches carried by the wind, and thick smoke clouds that hung in the sky. In particular this section articulates the historically tense logistical relationship with the Chicago River and Lake Michigan (engineering divorced from amenity.) Despite all of this, the Union Stock Yard quickly became emblematic of an era where urban progress was equated with efficiency and growth.[2] This section will also outline the important actors – i.e. meatpackers, engineers including: Archibald Clybourn, Willard F. Myrick, Wadsworth and Dryer, John Sherman, Octave Chanute, Philip Armour, and Gustav Swift to name a few – i.e. private sector activist whose industrial might had profound effects on the infrastructural pursuits and city form of Chicago.

[2] Because there was never truly a demand for more meat it helps us understand food production in an era technological determinism - i.e. as supply was increased and costs were lowered as a result of which consumer behavior responded.

Our friends were not poetical, and the sight suggested to them no metaphors of human density; they thought only of the wonderful efficiency of it all. ***- Upton Sinclair, The Jungle (p.28)***

One long-term result of this new network was a basic change in the American diet, and in that of many other parts of the world as well. – ***William Conon, Natures Metropolis (p.212)***



"Diagram of the Union Stock Yard," prepared by W. H. Civer, Resident Engineer. Frontispiece in Jack Wing, *The Great Union Stock Yards of Chicago* (Chicago, 1865). Courtesy, Chicago Historical Society.

Figure 1: Octave Chanute's Plan (Source: 52 Wade.)

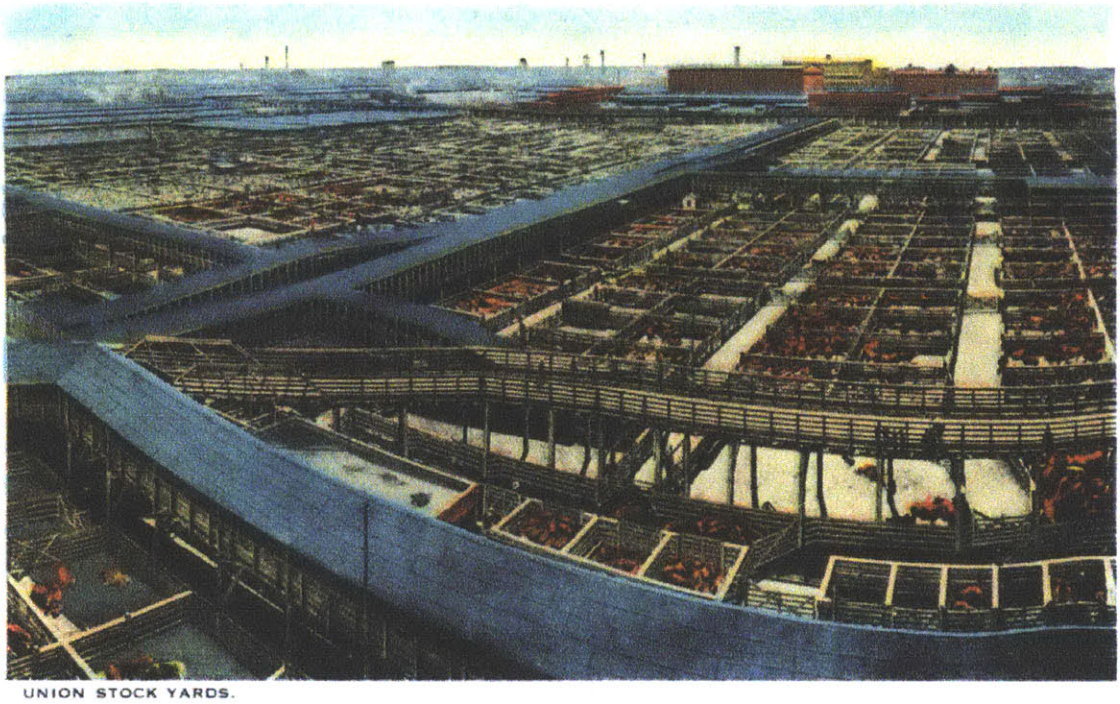


Figure 2: Postcard, c.1910, black and white photograph colored (Source: Google image search)

Origins of Meatpacking

The origin of urban meatpacking operations predates the railroad and artificial refrigeration. Therefore, it began as a seasonal task dependant upon weather cool enough to chill a carcass – conditions which usually arrive to the Midwest in October. Also, it is important to emphasize this practice needed regional cooperation.[3] Drovers from as far as Denver and Forth Worth began moving cattle to the city shortly after the first frost,[4] and livestock would be fed corn to fatten-up before slaughter.

Archibald Clybourn was the first documented commercial butcher in Chicago. When he arrived from Virginia, in 1823, the settlement was still known as Fort Dearborn. His operation began with a slaughtering shed

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[3] See: William Cronon, Nature's Metropolis, (New York: W.W. Norton & Company). The author theorizes at length about the hinterlands – urbanization linked to the resource of the "natural" landscape.

[4] One drover with two assistants could handle seventy-five to one hundred cattle or several hundred hogs. (6 Wade.)

built two miles south of the city along the Chicago River and animals brought from the Illinois and Wabash valleys.[5]

Meatpacking operations were characteristically located along the river because it was perceived as a rational amenity to clean shops and dispose of: blood, entrails, spoiled meat, and manure. When Chicago first organized a City Council in 1837, one of its primary tasks was to address river pollution. Their first attempt was to publically declare that offal should be kept from the river or anywhere else it would might be "injurious or offensive to the inhabitants." However, a binding ordinance was not passed until May 1843: its glaring flaw was that it only covered the jurisdiction within the city limits.[6]

Naturally, to avoid penalty, the new wave of meatpackers began their operations outside the city limits. For example, in 1837, even before the ordinance, Willard F. Myrick purchased land in Bridgeport between Twenty-sixth and Thirty-first streets for his operation.

Myrick was considered the most progressive and innovative meatpacker in the area because his ambitions were not confined to slaughterhouses; he capitalized on the potential to construct amenities that were meant to attract people from the city to the periphery in addition to serving the adjacent neighborhoods. Myrick built a hotel-tavern and a racetrack, and he was the first in the city to purchase a platform scale. In his book Nature's Metropolis, William Cronon characterizes Myrick's yards and some others that followed this trend:

> As with many other businesses, customers came to the city as much to participate in its broader cultural marketplace as to buy and sell produce and merchandise. Myrick's Yard, Bull's Head, Sherman Yards, and other stockyards of the 1840s and 1850s

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[5] By 1836 Clybourn was able to afford a twenty-room brick mansion. (4 Wade.)

[6] The fine for dumping was $25: half went to the city and the other half went to reward any would-be informants. (10 Wade.)

each possessed hotels and saloons where more than just animals and money changed hands. Restaurant food, whisky, and prostitution were among the many services provided.[7]

In the early 1840s most packers such as Myrick could slaughter and pack between 2,000 and 3,000 cattle per year. Likewise, during the summer offseason Archibald Clybourn tore down his shed to built a new plant (upon the same site), which could keep pace with such numbers.[8] However, the firm that was most responsible for further modernizing the actual practices of meatpacking during the 1840s was Julius Wadsworth and Thomas Dryer – a highly entrepreneurial team, formerly Boston and New York merchants.[9]

The Wadsworth and Dryer Company developed a technique to pickle beef sold as "jerked" beef; they removed beef tongues to be cured and sold; they boiled entrails for tallow to produce soap and candles; they were the first to ship to England; and they were the first to secure a contract with the United States Navy. An author for 'Prairie Farmer' reviewed Wadsworth and Dryer's operation and marveled that, "Perfection is only reached when nothing is lost." By 1848 Wadsworth and Dryer had seventy-five employees that could slaughter and pack 150 cattle per day – a pace that took only thirteen days to handle 2,000 cattle.[10]

The Pursuit of Increased Expectations

During the 1830s meat packed in Chicago was primarily consumed within the region – it was a necessity for a city builders and canal workers (in 1836 construction began on the Illinois Michigan Canal.) However, the 1840s saw a shift towards meat being exported. In 1848,

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7 William Cronon, Nature's Metropolis, (New York: W.W. Norton & Company), 209.

8 Wade, Chicago's Pride, 7. Efficiency in meatpacking continued to leap in increments that rival Moore's Law.

9 Wade, Chicago's Pride, 8-9. Also, interestingly, John P. Chapin was originally partner in their firm, but he left in 1846 when became the mayor of Chicago.

10 Ibid.

meat shipments constituted one-tenth of the Chicago's exports in terms of Gross Domestic Product (GDP.) That year Chicago processed 20,000 hogs, which exceeded expectations, but it seemed nonthreatening to Cincinnati's nation leading 350,000 hogs processed that same year. [11]

Cincinnati had begun meatpacking during the 1820s.[12] Cincinnati's advantage was a byproduct of its geography – located along the Ohio River, between farms in the South and consumers in the East – during an era that steamboat technology served as the primary means of freight delivery (prior to railroad construction.) However, in 1848 Chicago achieved many millstones that were designed to tip the scales in their favor: the Chicago Board of Trade was established; the first telegraph line was installed; the ninety-six-mile Illinois Michigan Canal opened, which connect Chicago to the Mississippi River; and, the first ten-miles of "plank road" was laid for a trial run.[13]

Two years later, in 1850, Chicago began laying the groundwork (literally and figuratively) to deal its first significant blow to Cincinnati. On February 10th, 1851, Chicago earned the first federal land grant to finance rail construction: the proposal was for the Illinois Central Railroad to be built from Chicago to the Gulf of Mexico.[14] This project began simultaneously in Chicago and Cairo, Illinois. (Cairo's significance was strategic due to its location at the confluence of the Mississippi and Ohio Rivers.) When the first section opened, in 1856, the result meant that livestock from markets that were once destined for Cincinnati could instead be shipped to Chicago. In other words, a transfer from steamboat to railroad could bypass Cincinnati and in only a matter of years not even a transfer would be necessary.[15]

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11 Wade, Chicago's Pride, 10-11.

12 Pate, Livestock Hotels, 26. The first meatpacker in Cincinatti arrived in 1818.

13 Wade, Chicago's Pride, 11.

14 Illinois Senators Stephen Douglas and Abraham Lincoln, Illinois native and lawyer for the railroad, lobbied for the grant. (Illinois Central, Wikipedia)

15 Wade, 13. d'Eramo, The Pig and the Skyscraper, 16-21. The author connects the power of fixed costs and the behavior of the railroads. Interestingly, the author notes that, "Transporting a steer on the Buffalo-New York train cost

Yet, the American Civil War was the blow that ultimately toppled Cincinnati's reign as the world's "Porkopolis." During the Civil War Cincinnati could no longer receive supplies or livestock from the Confederate South – a major part of its hinterlands – also, transportation along the Mississippi River was interrupted.[16] Contrastingly, the Civil War benefitted Chicago, which had the stability of: privately owned railroads, a vast hinterland to the uncontested west, and demand from the Union army.

In 1863, Chicago officially surpassed Cincinnati. That year Chicago slaughtered and packed 920,000 hogs whereas Cincinnati processed 600,000 hogs. By the end of the Civil War, Cincinnati had fallen back to 350,000 hogs processed: numbers that Cincinnati had achieved in the early 1850s but no longer held weight against Chicago's hurriedly modernizing operations.[17]

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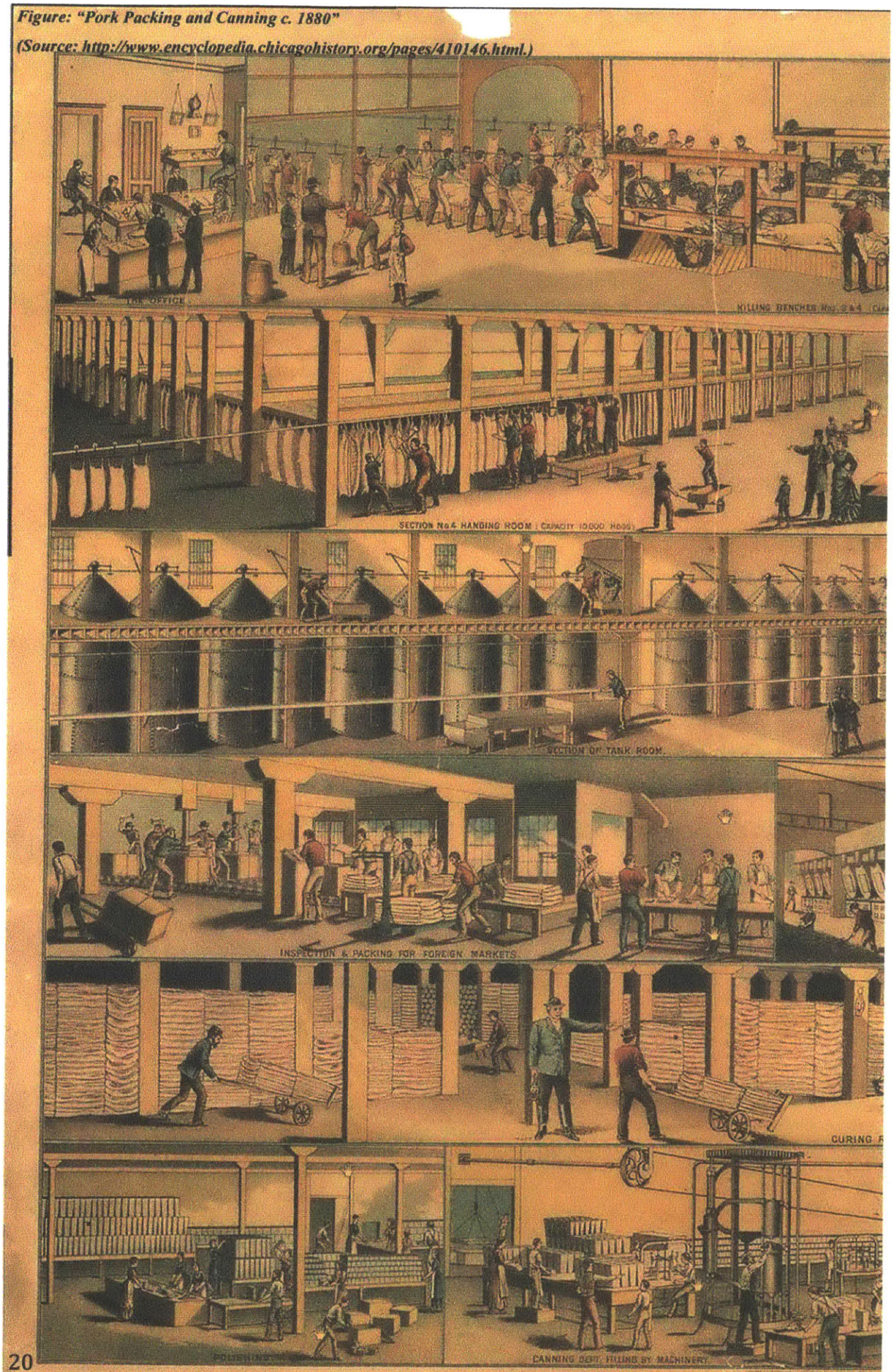
only $1, while a passenger ticket cost as little as $5." He concludes that, "It was natural that the railroads in the United States would be private just as the riverboat companies had been before them."

16 Wade, Chicago's Pride, 32. The author argues that Cincinnati had been slow to acquire railroads because civic leaders thought the steamboats and river transport had superior stability.

17 Ibid.

Figure: "Pork Packing and Canning c. 1880"

(Source: http://www.encyclopedia.chicagohistory.org/pages/410146.html.)



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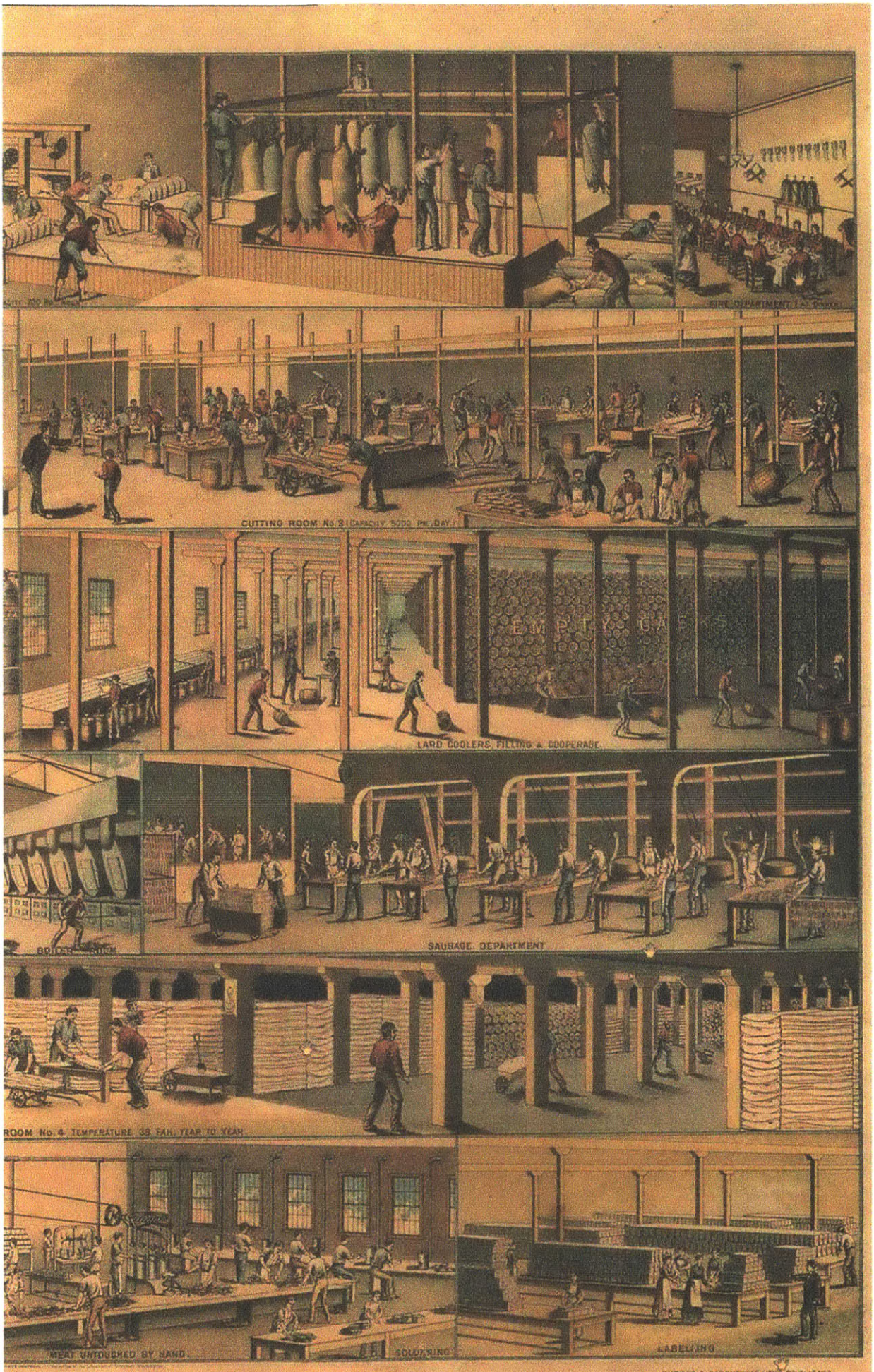
FROM WHOM COPIES MAY BE HAD.

INTERIOR VIEWS OF A MODERN FIRST CLASS PORK PACKING &



CANNING ESTABLISHMENT OF THE UNITED STATES OF AMERICA.

Long before automobiles rolled off Henry Ford's assembly line its predecessor the "disassembly line" had established a precedent in meatpacking for what mass production could accomplish.[18] The division of labor meant that it took less time to process a single animal, but it used the work of 126 individuals to disassemble one pig, or 157 individuals to disassemble one steer.[19] Each year American meatpackers killed with greater speed, which brought more animals to the city and increased concerns of disposing carcass in a growing city.[20]

The growth in demand during the 1850s and 1860s fueled the rapid expansion of meatpacking firms. "Whereas six houses in 1848 had handled 30,000 animals, thirty firms in 1860 were needed to handle 200,000 animals."[21] While meatpacking in Chicago began near the South Branch of the Chicago River, specifically in Bridgeport, new operations began to locate in other areas of near the city. For example, as early as 1848, Gordon Hubbard started in Bridgeport but built his second plant on the North Branch near Goose Island; curiously, in 1851, Matthew Laffin opened a one-hundred acres plant west of downtown (near Ashland Avenue and Madison Street), which was lacking an nearby source of flowing water; and, in 1858, Walter Sherman established his "Lakefront" operations east of Bridgeport and south of downtown (near Twenty-eight Street and State Street.)[22]

The citizens of Chicago became increasingly displeased with the increased congestion of traffic, which included a mix of people and livestock. Louise Carroll Wade illustrates the following incident:

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18 The birth of Modernist poduction is often understood as a product of Fordism as it was dominant in the global psyche during the era of Ludwig Hilberseimer, Walter Gropius, Le Corbusier, Mies van der Rohe, and so on. However, the era this paper covers is responsible for many of the innovations (grain elevators, icehouses, factories) that were so manifest in the psyche of the designers in the 20th Century era that followed.

19 D'Eramo, Pig and the Skyscraper, 33.

20 Gideon, Mechanization Takes Command, 183. Contrastingly, during the same era, the Parisian stockyards at La Villette were more concerned with skilled meat carving and fewer individuals (approximately 10 per animal.)

21 Wade, Chicago's Pride, 28.

22 Wade, Chicago's Pride, 27.

> Drovers tangled with pedestrian and vehicles, and these encounters led to arguments, traffic jams, and sometimes accidents. In November 1863, an impatient drover ignored the warning bell and took his cattle onto the Rush Street Bridge when it was about to open. As the span began moving, cattle stampeded to one end, blocking the only escape route for pedestrians and causing the iron bridge to twist and break. Fifty cattle and a dozen people went into the Chicago River, and taxpayers were set back $10,000.[23]

Moreover, the city was not appropriate terrain for the number animals that were coming to be slaughtered. William Cronon offers the following account that documents the difficulty drovers had navigating a network of decentralized packing plants:

> Lying in different parts of the city, on different diverging streets, in several instances two or three miles apart, these yards were found inconvenient for the transaction of business. A drover bringing a herd of cattle or hogs into the market was obliged to drive them through the crowded streets of the city, to yard after yard, thereby suffering the greatest inconvenience, and in many instances loss, occasioned by the difficulty of driving, and rough pavements, which lacerated and tore the hoof of the animals, producing disease and many other evils.[24]

Rapidly deteriorating river conditions were also a concern for citizens. In response, Chicago officials began to formulate two engineering solutions. In 1863, Ellis Sylvester Chesbrough (who had suggested raising the city to facility gravity flow for sewers and storm capacity in 1855) was in charge of the Board of Public Works, and he was called upon to devise a solution for drawing pure drinking water. Chesbrough first suggested a tunnel that would extend far enough into Lake Michigan to reach pure water. In February of 1865, an arguably more ambitious solution was reached: a deep-cut steamship channel in the canal. The

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[23] Wade, Chicago's Pride, 47.

[24] Cronon, Nature's Metropolis, 209.

proposed infrastructure would allow for larger ships to flow in-and-out of Chicago, and, even more consequentially, the solution would reverse the flow of the Chicago River.[25] As a result, offal from Chicago's numerous stockyards would travel to the Mississippi River instead of into Lake Michigan. (If "perfection" was defined as "nothing lost" then, in actually, this system was far from perfect due to the total loss of manure for any productive purposes.)

Even with a plan in place to reverse the flow of Chicago River it would be six years before such the massive infrastructural project could be completed. So, at the same time (February of 1865) an act was passed with sanitary measures and health regulations. Licensing operations that handled "decayed, putrid, or unsound animal matter" within four miles of downtown became prohibited – violators faced fines of $500, or they could be enjoined from continuing their business.[26] Much of Bridgeport had been annexed in 1863, so it was now under the full jurisdiction of the city. Therefore, massive change was needed in order for large-scale meat production to continue.

The leading meatpackers in the city began to organize as early as 1863 "for the advancement and mutual protection of interests." One of their great efforts was to establish measures of quality, such that a marginally skilled packer would not be able to bring down the reputation of the Chicago's meat exports.[27] With communication established among leading meatpackers, the stage was set for other highly consequential ideas to hatch.

Engineered Answers: Facing the Modern City With Modern Infrastructure

Early in 1864 John Sherman and Samuel Allerton emerged as advocates for a singular centralized stockyard beyond the reach of the expanding

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25 Wade, Chicago's Pride, 39.

26 Wade, Chicago's Pride, 40.

27 Wade, Chicago's Pride, 35. Orville Tobey served as the first director, and the first manual to set standards was published in 1865.

city. By the fall of 1865 a charter was drafted for a The Union Stock Yard and Transit Company, which included the support of nine railroads. In February of 1865, that the legislation was approved and the governor authorized the project: slated to be another unprecedented feat of engineering and efficiency.[28] The land for the Union Stock Yard was chosen in the town of Lake – safely located six miles from downtown.[29] They broke ground on the project in June of 1865; it opened just six months later – on Christmas Day 1865. Between the years 1870 and 1889 the Town of Lake grew from a population of three thousand to eighty-five thousand. As a result was Chicago's annexed the thirty-six square mile suburb, which was thought to enhance the prominence of a rising young city.[30]

The Union Stock Yard plan is credited to railroad engineer Octave Chanute. It featured sixty acres with 500 pens that could hold 14,000 cattle and 50,000 hogs with plenty of room left for future expansion on the 320-acre site (as seen in Figure 1, Figure 2.) The site also had amenities such as the Hough House, a board of exchange, and boarding houses.[31] At its full maturity the site had one hundred acres with 2,300 pens that could hold 21,000 cattle, 75,000 hogs, 22,000 sheep, and 200 horses.[32] During its peak, the Union Stock Yards slaughtered 40 million animals per year, and it employed 25,00 individuals (jobs included: leather, soap, fertilizer, canning, glue, gelatin, shoe polish, buttons, perfume, and violin strings.) It produced 82% of the meat consumed in the United States and easily outpaced competitors in Baltimore, Cincinnati, Louisville, Kansas City, Burlington, Omaha, Fort Worth, and Denver to name a few.[33]

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28 The editor of the 'Prarie Farmer' remarked that the new arrangement "should prove as advantage... provided it does not turn into a monopoly." (49 Wade.)

29 In 1852 John Wentworth and his father-in-law Riley Loomis had paid $7,400 for 320 acres in Section 5. Thirteen years later, 1865, the Union Stock Yard and Transit Company bought the same Section 5 site for $100,000 (Wade 19). By contrast, in 1872 twenty-one acres within that same section cost Philip Armor $100,000 (Wade 99).

30 Wade, Chicago's Pride, XI. The author refers to the stockyards as an "instant suburb."

31 Wade, Chicago's Pride, 52-53. (Figure, p.52)

32 Cronon, Nature's Metropolis, 210.

33 Wade, Chicago's Pride, XI.

The Union Stock Yard quickly became an icon of an era where urban progress was equated with efficiency and growth. Louis Carroll Wade noted, "The shippers liked the Union Stock Yard prices and the stockholders appreciated the annual profits."[34] Additionally, the leading meatpackers invited people to visit the plants, (albeit on a highly choreographed tour.) Wade again writes, "In 1875, when the stockyard was only ten years old, a Chicago editor asserted that visitors would as soon think of leaving the city without having seen the yards and packinghouses as "a traveler would of visiting Egypt, and not the pyramids; Rome, and not the Coliseum; Pisa and not the Leaning Tower."

Conclusions

To summarize, the Union Stock Yards is that result of a group of private sector entrepreneurs looking to escape the rules of the municipality. The success of the project was based on obtaining money by politicking for infrastructural projects such as rail transportation.

Development opportunities were not limited to the Union Stock Yards. Amenities in the vicinity sprung up such as: hotels, taverns, and racetracks – as well as cable cars to deliver businessmen and tourists from the city.

Additionally, the wealth generated by the stockyards was pivotal in re-building Chicago after the Great Fire in 1871: at that moment in time one third of the city's GDP came from meatpacking and its related businesses. Later, Philip Armour was the biggest investor in the establishment of the Illinois Institute of Technology.

And, while it is beyond the scope of this paper, the Back of the Yards neighborhood went on to become testing grounds for labor rights and

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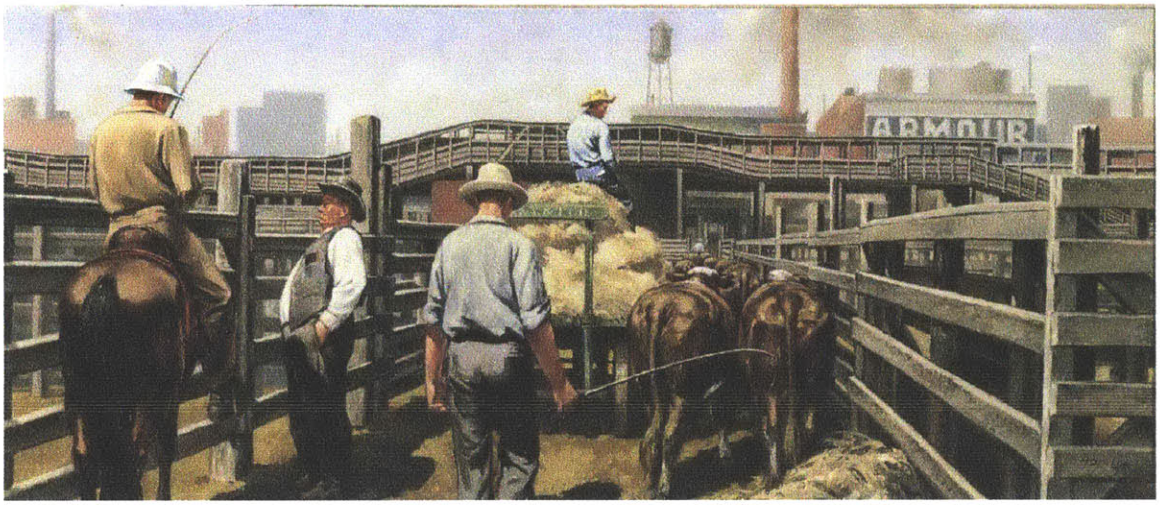
[34] Wade, Chicago's Pride, 56.

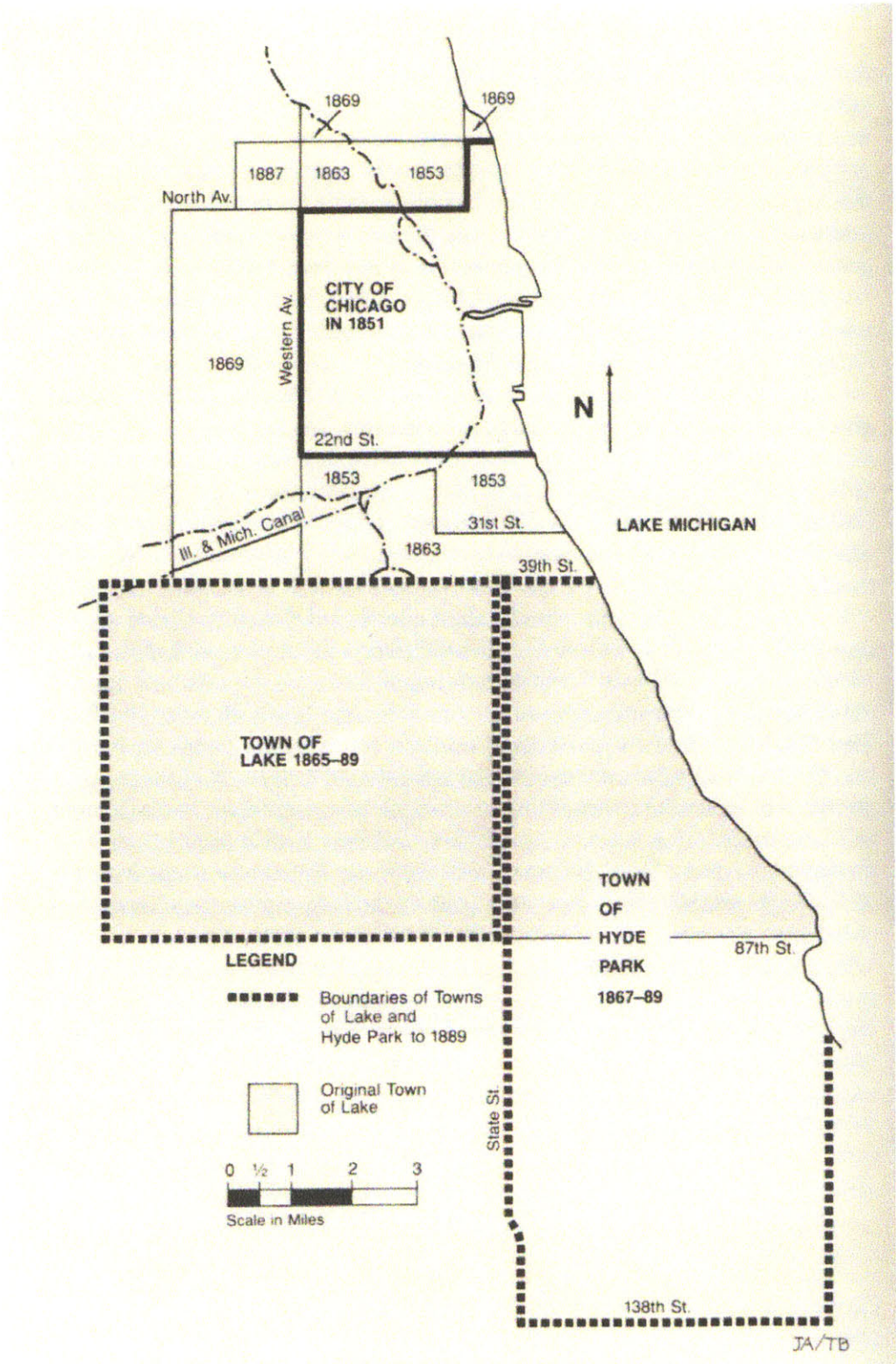
community organization. It is synonymous with Saul Alinsky. Jane Jacobs referenced it in *The Death and Life of Great America Cities* – as a neighborhood that is able to absorb newcomers. [35] More about its role of labor politics Robert Slayton's *Back of the Yards: Making of A Local Democracy.*

Figure: Mural of Union Stock Yard Livestock Pens c.1880 (Source: Google image search, accessed Nov. 2011)



[35] Jacobs, J. The Life and Death of American Cities, 137. "To be sure a good city neighborhood can absorb newcomers into itself, both newcomers by choice and immigrants settling by expediency."

Figure: Chicago's First Annexations (Source: 16 Wade.)



Map 2. Chicago annexations, 1853, 1863, and boundaries of townships of Lake and Hyde Park

Figure: Chicago's Stockyard Land Ownership c. 1849 (Source: 68 Holland, modified.)

2.

BACK OF THE YARDS TODAY:

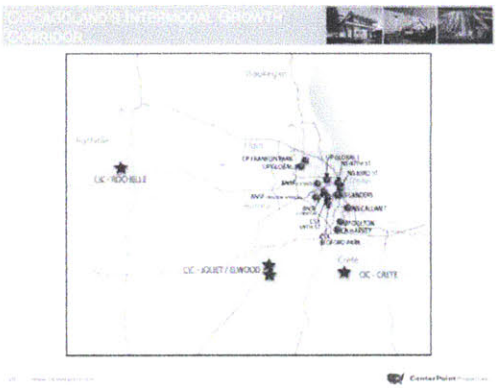
Snapshot of an Industrial Park

This section will explain the site's transition into an industrial park and the forces that threaten it today.

Disorder in the city is merely an order we cannot yet see. – ***Learning From Las Vegas***

Figure: Chicago Metro Intermodal Corridor

(Source bottom: Bing map modified; Source right: Mullen Centerpoint Lecture)



Today, Chicago has 2.7 million residents, thus it ranks the third most populous city in the United States. However, Chicago's population reached its peak during 1950's (3.6 million) – followed by the loss nearly 800,000 people over the next four decades. The sharpest population decline was between 1970 and 1980. At that time, trends towards deindustrialization and increased suburban settlement contributed to depopulation.[36] Many of the areas hardest hit were on the Chicago's working class South-side.

The Union Stock Yard was one of the casualties of decentralized production; located five miles southwest of downtown, it closed 1971. During the years that followed the area transitioned into an industrial park, crude logistics ruled its development thus almost all physical traces of the stockyards have been cleared. The Union Stock Yard Gate is the only architectural remains of the famed meatpacking era.

One premise of this thesis is that the Back of the Yards industrial park services are likely to succumb to newer, larger, and faster logistics hubs that have opened near Joliette and Elwood (40 miles from Chicago.) The area, which measures one square mile, is unlikely to be used for such purposes again because: 1) The scale of that the city is at odds with the demands of industrial logistics distribution centers. (For instance, a new site in Joliet covers 32 square miles.) 2) Surrounding density is inefficient for sipping and receiving freight. (A train from LA can reach to Chicago's periphery in fifty-five hours, but it commonly takes thirty-six hours to get in and out of city: passengers cars have priority of freight trains, which can slow to average speed as low as 3 miles per hour.)

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36 Pate, J'Nell. Livestock Hotels, 42. Beginning in the 1950s the United States underwent a paradigmatic shift toward suburbanization, during which these three factors lead to a: decentralization of meatpacking, increased competition from truck and the development of the interstate highway system. As the meatpacking business decentralized, following WWII, productivity declined such that the stockyards closed in 1971

(See Figure: Chicago Metro Intermodal Competition)

Recently, companies formerly located in the stockyards industrial park (e.g. Heat and Frost Insulators and Midwest Floor Covering Inc.) have relocated to newer Greenfield developments in suburbs such as Tinley Park and Joliet. Meanwhile, in the Chicago warehouses are increasingly being razed, sitting empty, or used for personal storage. Today, the biggest employers at this site are beverage bottlers (Rexam, Pepsi.)

(See Figure: Occupancy Analysis.)

As Greenfields are developed into industrial parks and office parks, polemically, postindustrial sites within the city have emerged as testing grounds for Urban Agriculture. Within the last two years the stockyards area has seen the addition of two prominent food-growing operations: Growing Power (July 2010) and Iron Street Farm (September 2010.) Ed Soja, in *Six Discourses on the Postmetropolis*, explains:

> What has been happening to the industrial capitalist city is much more than the decay of manufacturing industry and shift to services economy. Deindustrialization has been occurring alongside a potent reindustrialization process built not just on high technology electronics production but also on cheap- labor intensive forms of craft production and the expansion of producer-oriented services and technology. These shifts, often to more flexible production systems and denser transaction-intensive networks of information flow, are creating new industrial spaces that have significantly reshaped the industrial geography of the late modern or Fordist metropolis.

Soja's term for such places is Flexcity – i.e. areas that embrace flexibility and prioritize getting "lean and mean." This thesis proposes a program that conceptually builds upon Soja's Flexcity concept by bundling

industries such as Urban Farming, Food Preparation, and Energy Production.

A Look Into Mono-functional Zoning in Chicago

The industrial park in Back of the Yards is zoned exclusively for industry. But it does not keep out suburban-scaled big boxes that are decreasing the density of the site and employing fewer workers. While storage may continue to be a part of the Chicago's future, it uses the fewest workers possible, which is not benefiting an area with a large working-class base. (Storage moving out of the city is may be a positive for both sides – i.e. the companies and host city.) This area needs to consider the future what kind of jobs Southsiders will be doing - it could benefit from having the feeling of a physically defined nexus – a place to work, gather protest, go-out, and all sorts of 'public' acts.

For instance, while receiving food and slaughter are allowed, its zoning does not allow for kitchen preparation or growing food. Therefore, operations that grow, prepare food now only do so because the city has agreed to "look the other way" concerning their non-compliance. The city clearly knows what is goes on in the stockyards; city officials (such as Mayor Rham Emmanuel) have even touted the presence of The Plant and Iron Street Farm. Under the leadership of Mayor Rham Emmanuel the city of Chicago has made efforts to be more accommodating to community gardens, yet there has not been a sweeping effort to address the stockyards.

Figure: Occupancy Analysis (Key)

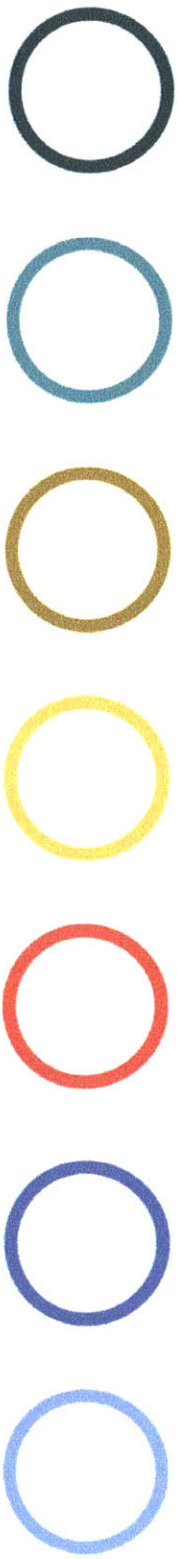
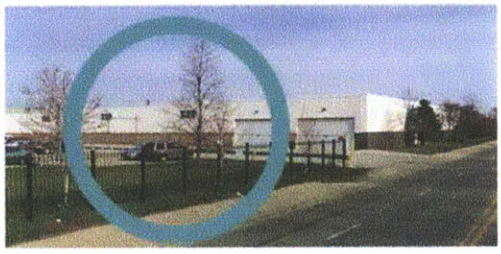


Figure: Occupancy Analysis

Figure: Material Typology Analysis (Key)

TILT WALL MORE THAN 32'-0"

TILT WALL LESS THAN 32'-0"



SHORT BRICK CLADE WAREHOUSE

TALL BROWNSTONE WAREHOUSE

HISTORICAL MEATPACKING

Figure: Material Typology Analysis

3.

THE FOOD-TECNOLOGY STAKES:

Facts and Actors

The question lingers, "What role does food production have in the city?"

There are a numerous of signs of that an era of food consciousness is taking root in Chicago – this section will explore some of Chicago's actors among others, which include: John Edel's "The Plant"; Will Allen's "Growing Power"; Michelle Obama's work "Let's Move"; and Rham Emanuel's "Food Desert" awareness policies.

Seemingly, the time has come for the narrative to shift and a new food technology paradigm to take root. This section will focus on the spatial consequence of food consumption in the United States as well as argue that cities should be change agents that challenge the norms of industrial food production.

The Good Food Revolution: It's not about going out and picking city hall – how people traditionally think about revolution – its really about changing the way we eat, changing the way we grow food, and the way we relate to people. – ***Erica Allen (Iron Street Farm)***

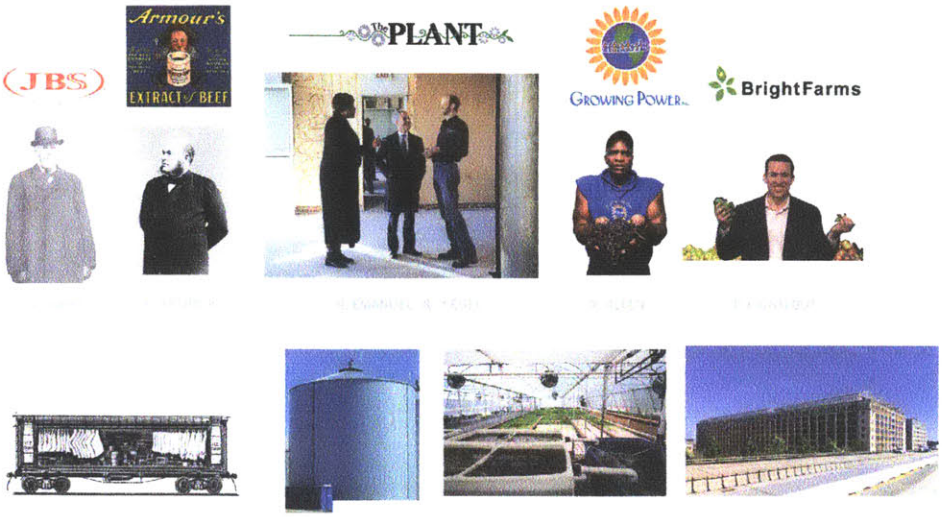


Figure: Actors and Innovations (Source: Google image search collage)

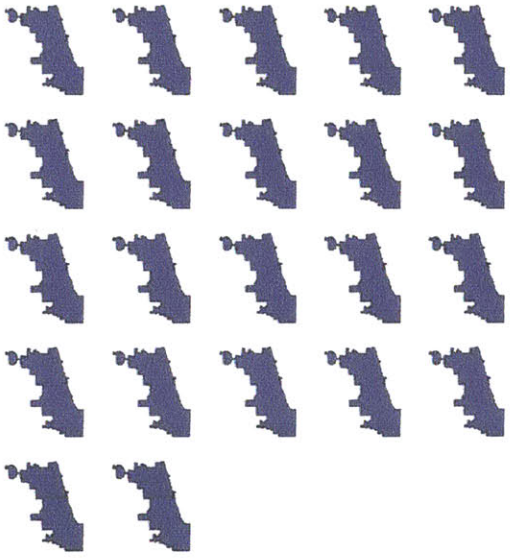
Between 1868 and 1872 Gustuv Swift invented the refrigerated rail car many times over until he reached a design that is not dissimilar from the ones we use today. Today, low-tech innovations are fueling a growing movement of urban farming. Urban agriculture is a young but expanding industry that is challenging the notion that food should only be produced in rural areas. Here's a look at what distinguishes three emerging actors: John Edel, Will Allen, and Paul Lightfoot.

John Edel's operation (The Plant) distinguishes itself by capturing waste and using an anaerobic digester to convert that waste to biogas. By using both biogas and photovoltaic collectors as the building's energy source it is expected to be off the grid. Additionally, The Plant grows food in dark areas of the building by using LED lights that provide only the colored light wave the plants need (i.e. plants naturally reject green light, but absorb blue and red light.)

Will Allen's operations (Growing Power/ Iron Street Farm) have perfected the science of food production using aquaponics. A combination of aquaculture (growing fish) and hydroponics, aquaponics is a closed-loop system that uses nutrients from the fish to feed the plants, and the plants in turn clean the water before it returns to the fish. To sustain itself financially, Growing Power grows produce to sell to high end restaurants (at a high end price) while it also provides food boxes for poor communities.

Paul Lightfoot (Bright Farms) wants to shorten the produce supply chain by growing food above warehouses and supermarkets. His business model is about cutting down fuel cost and water consumption. One of the main marketing points of Bright Farms produce is taste, which Lightfoot claims to be better than produce that has "bounced across the country in the back of a 53' truck."

HOW MUCH LAND IS USED TO FEED CHICAGO's 2.7 MILLION INHABITANTS?



HOW MUCH LAND IS USED GROW ALL THE *VEGETABLES* CONSUMED BY CHICAGOANS?

CLOSE THE LOOPS, CLEAN THE WATER

"LESS IS MORE" ENERGY SAVED!

Facts of the System

The last decade has seen widespread acknowledgment that an energy-consciousness paradigm with buildings and transportation.[37] Yet, by comparison, the debate for energy-conscious food production has existed at a whisper. This is despite the facts that: 1) after cars, the food system uses more fossil fuel than any other sector – 19 percent; 2) the EPA reports that industrial agriculture has pollutes 35,000 miles of rivers in 22 states; 3) it takes up to 16 pounds of grain to produce 1 pound of meat; 4) the U.S.D.A. estimates that American households throw-out, on average, 14 percent of the food they buy.[38] One premise of this thesis is to carve out a place in city to engage in research and development that explores energy conservation food production – while also serving as an example of a newfound coexistence with the Chicago River.

To summarize, there is a lot of latent potential in our waste – we should be capturing energy from it while we reduce the amount of energy we draw. A new industrial ecology focused on closed-loop, symbiotic relationships, is a welcome study and one Chicago should be engaged with.

(Fact: the Institute of Food Technologists, IFT, is headquartered in Chicago)

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[37] The building industry has embraced the sustainable movement – e.g. the United States Green Building Council has existed since 1993, for nearly two decades now, and in the 2010 18,500 professionals were LEED accredited. What does it say about our culture that R&D for sustainable buildings and transit is more seriously pursued than R&D food?

[38] Pollen, "Farmer in Chief." (Household: i.e. retailers and wholesalers are not included.) One meatless day a week, if observed by all 300 million Americans, would save the equivalent carbon of taking 20 million midsized sedans off the road for one year.

Taste of Chicago: Encouraging Cultural Norms

In Chicago, generally speaking, people are proud of *their* food. This claim is supported by the fact that Chicago has more hot dog restaurants than McDonald's Wendy's and Burger King establishments combined. The Chicago Dog, Chicago-mix Popcorn, Chicago-style Pizza are prominent contributors to Chicago's idiosyncratic legacy.

Each summer, traditionally the Friday before the 4th of July, Chicago hosts the largest food festival in the world: Taste of Chicago. (Which also has the distinction of being the largest festival of any purpose that hosted by Chicago.) The Taste of Chicago is a microcosm of the reality we face today – calorie intensive foods that have adverse health affects and are lacking true diversity in their makeup.[39] If Chicago were to us the Back of the Yards grow food again – what would that look like, and how would it change what we eat?

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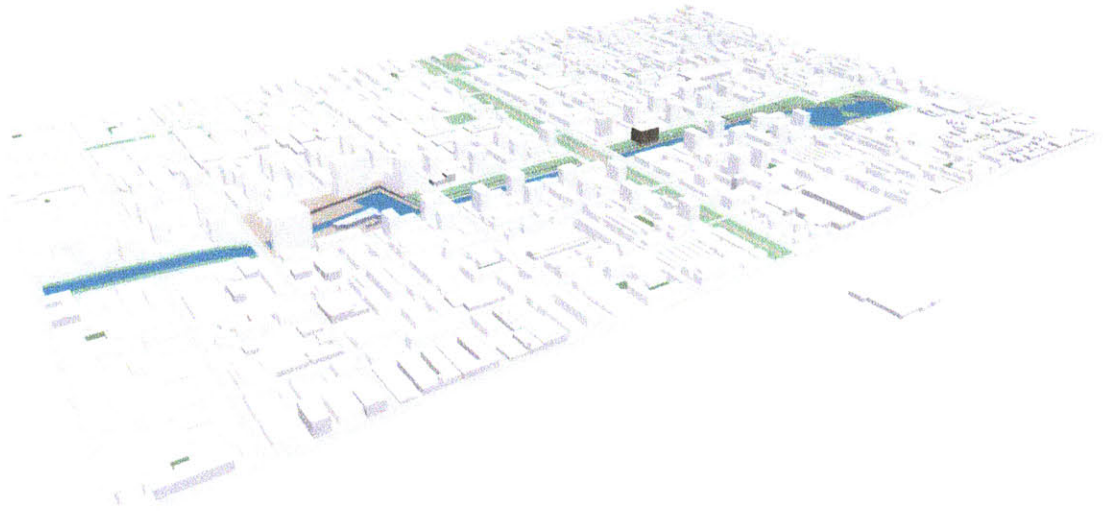
[39] In addition to the aforementioned 'Chicago' foods: Polish Sausage, BBQ Ribs, Italian Beef, and Cheesecake are traditionally popular attractions at Taste of Chicago. Taste of Chicago may be diverse in a meat-centric sense, but I foresee it diversifying further – towards healthier and sustainable foods – with food grown from within Chicago again. Aside: As meat-centric as Taste of Chicago may be, I would not suggest categorically ridding it entirely of meat (I am not so bold.) The idea is that 'Taste of Chicago' should reflect what is currently going on in Chicago. Part of conventioneer culture is to be current: not to singularly, and romantically, 'freeze' the past.

4.
THE NEW FOOD-TECH CITY:
An Urban Design Project

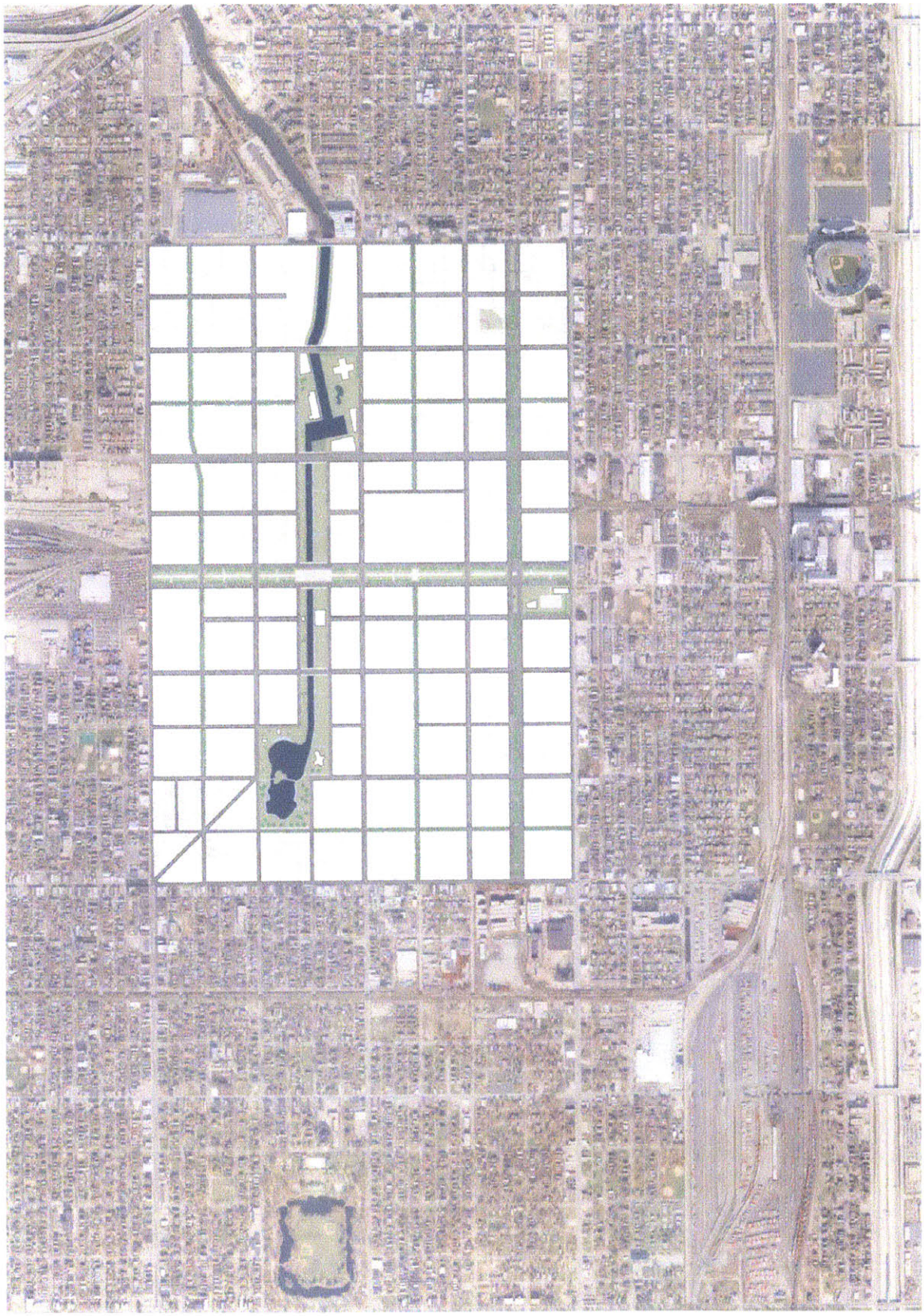
This design project is about designating places to grow food again in the post-stockyard, and post-industrial park, Back of the Yards Chicago. Additionally, this thesis design proposal is about selectively framing existing buildings with new public space. The design treats the memory of the past, as a stockyard and an industrial park, as equally important.

The typical Chicago fabric beyond the core is monolithic: it can be understood as one square mile divided into eight rows and sixteen columns – the result is 128 blocks that measure 250' x 600' (660' feet to center of the street.) I propose using that 8x16 block structure, but cutting the number of blocks in half (8x8) – to create a superblock that measures 600' x 600' that can selectively absorb the existing building stock.



I came to regard cities and their urbanizing regions as consisting of time as well as materials, and forever changing... There is no universal and everlasting right way for cities to present themselves to us. Each reflects the ideas, traditions, and energies available to its citizens in past centuries, as well as at this moment... It reveals patterns and relationships forming and re-forming. – ***Grady Clay***

Figure: Urban Design Plan



Neighborhood Walkability

The site is surrounded by four archipelago neighborhoods. (Clockwise: Bridgeport to the northeast, Canaryville to the southeast, Back of the Yards to the southwest, and McKinley park to the northwest.) There are numerous gaps between urbanized zones – making walkability from neighborhood to neighborhood nearly impossible. In particular Halstead, the western edge of the site, is frayed and lacking commercial use from Pershing to 47th St. My Thesis design proposal is meant to fill the gaps and connect these neighborhoods.

Conceptually, Chicago blocks cater to traffic (originally carriages and streetcars, it has now given way to automobiles and freight trucks) and the zoning is mostly mono-functional. The outer edges of the square mile act as thoroughfares, and serve location for most commercial functions. Housing and parks are located inside the square mile. I believe services should be more evenly distributed throughout the site.

The super block typology encourages retail, industrial, office, and residential typologies to occur and many variations within a square mile area. By nature of the multifunctional zoning, the outcome of these blocks cannot be controlled, but the guidelines call for building to the perimeter of the block, which accentuates the streets.

The interior pocket spaces (shared pedestrian an vehicular traffic, with pervious pavements) of the superblock give relief to the scale of the superblock while also acting as a filter for roof water run-off.

(Note: When circles appear on the new figure grounds they represent anaerobic digesters to signify where food production is taking place.)

Figure: Proposed Superblock Occupancy (Key)

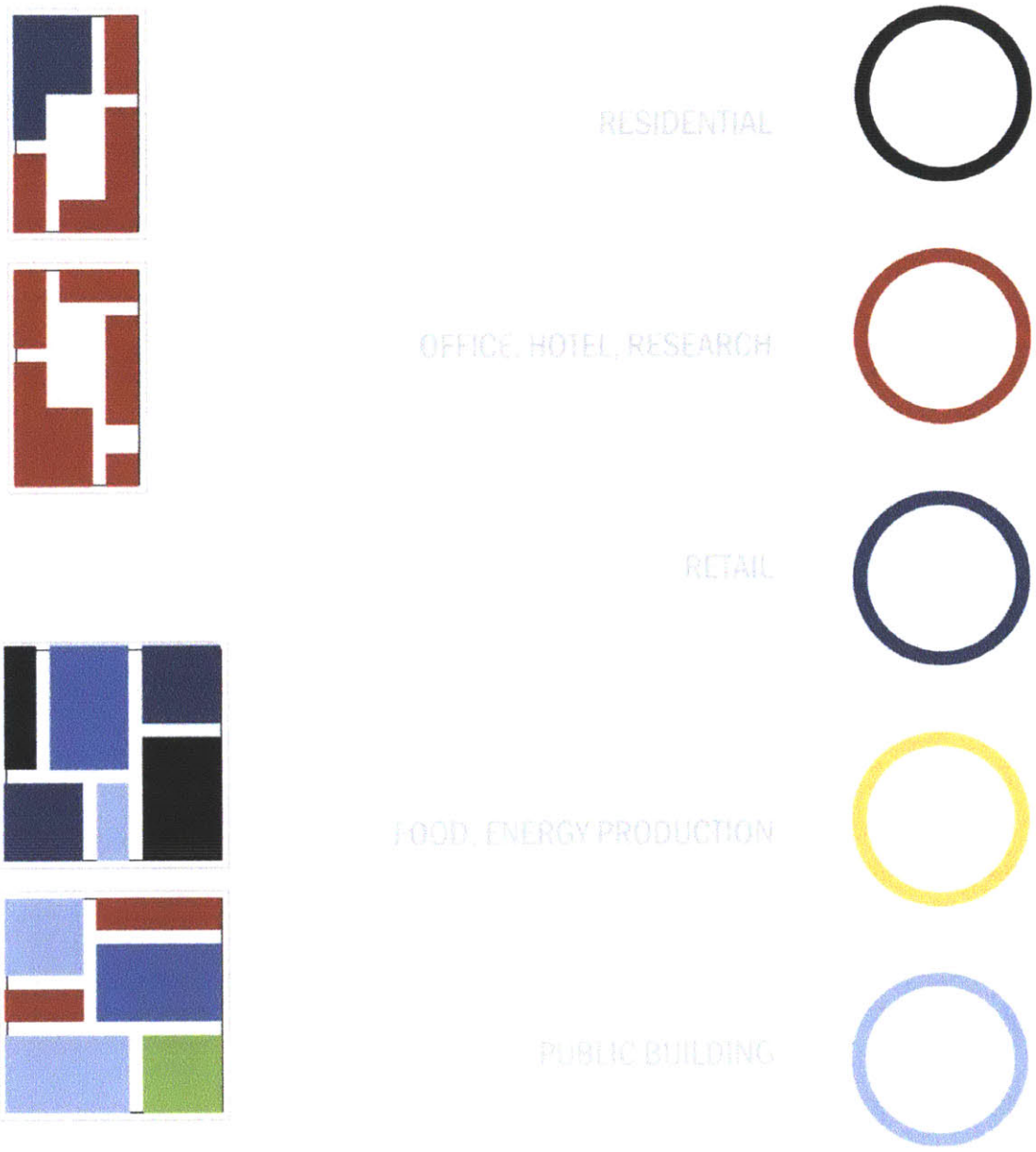


Figure: Proposed Superblock Occupancy Illustrative Plan

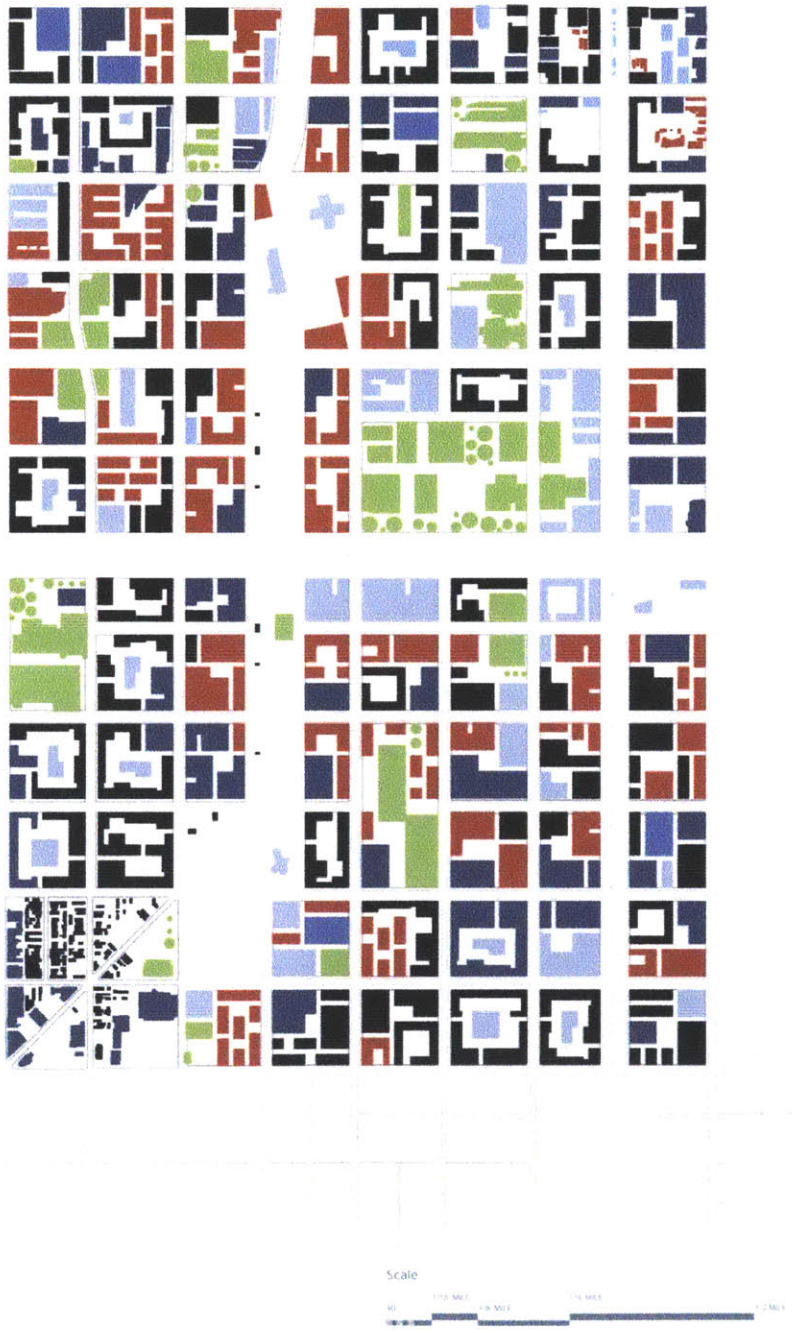


Figure: Existing Bird's Eye View (Source: Bing Maps)

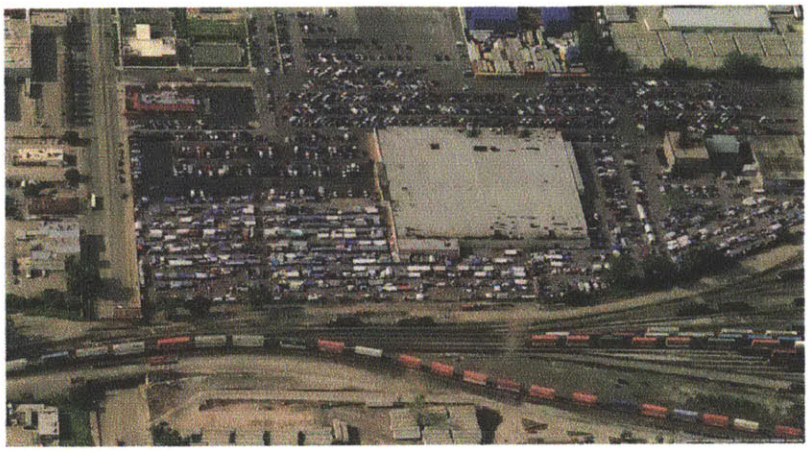


Figure: Existing Figure Ground (p2/2)

Figure: Demolition Bird's Eye View (Source: Bing Maps)

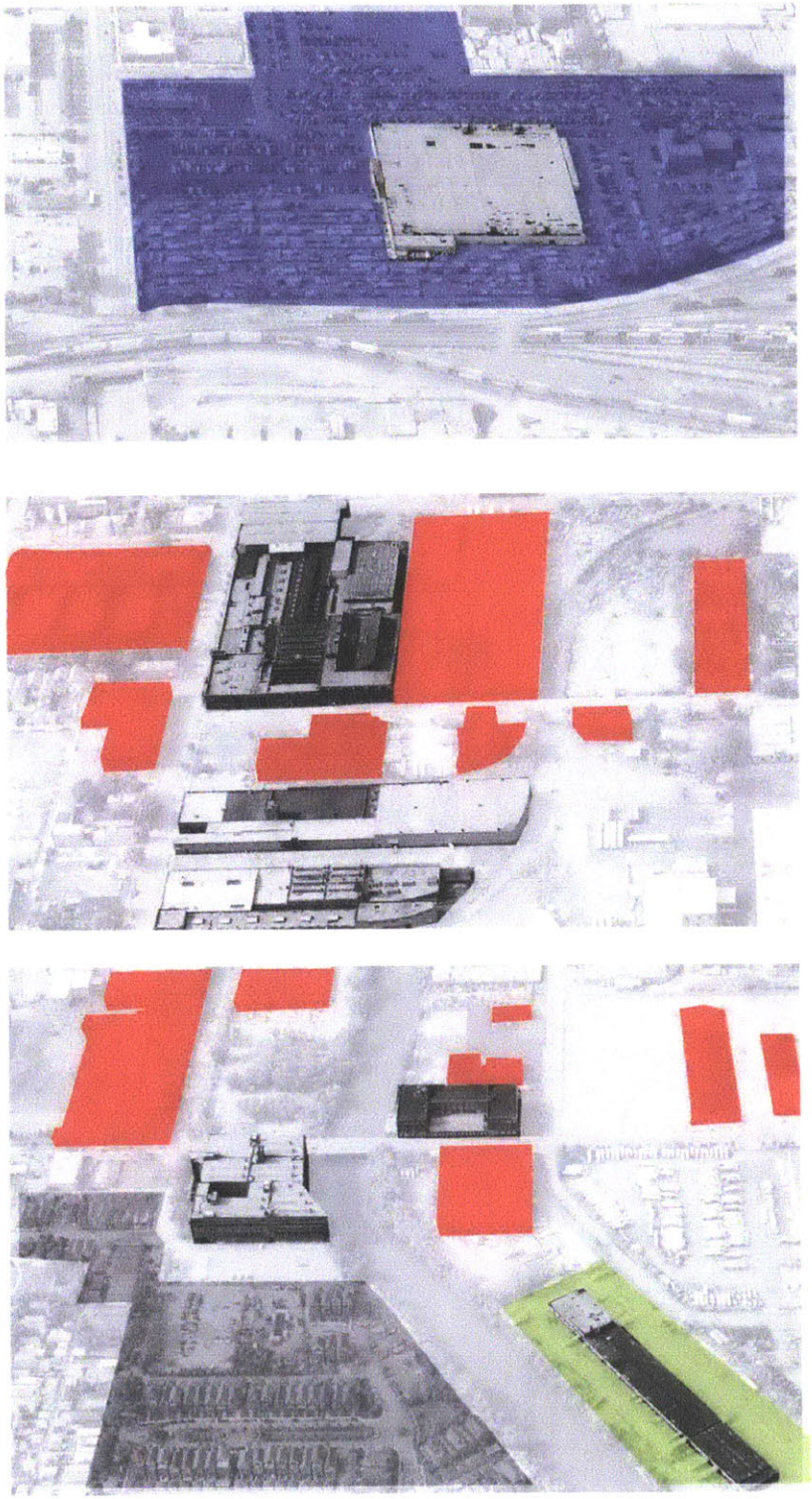


Figure: Demolition Figure Ground

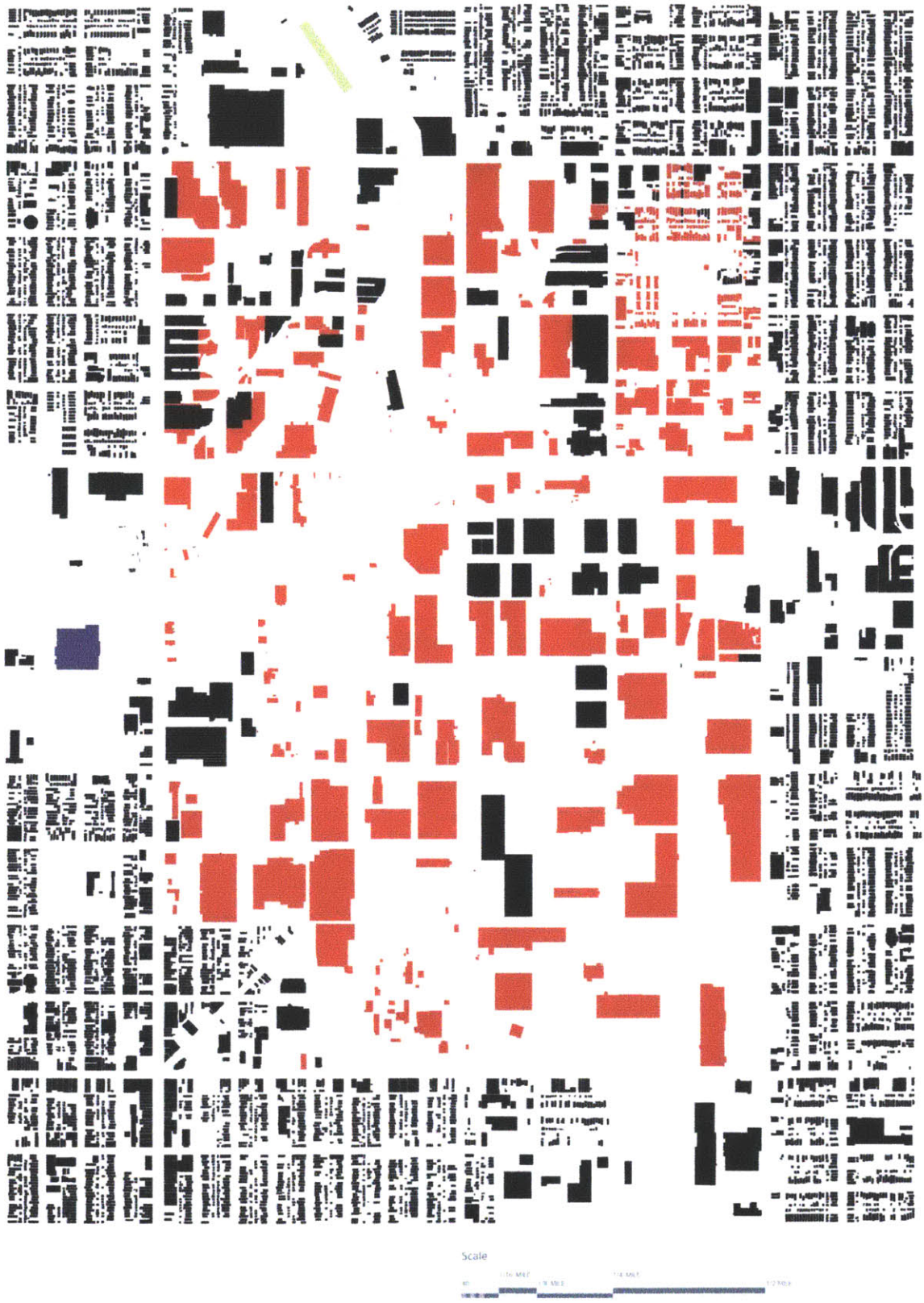


Figure: Phase 1

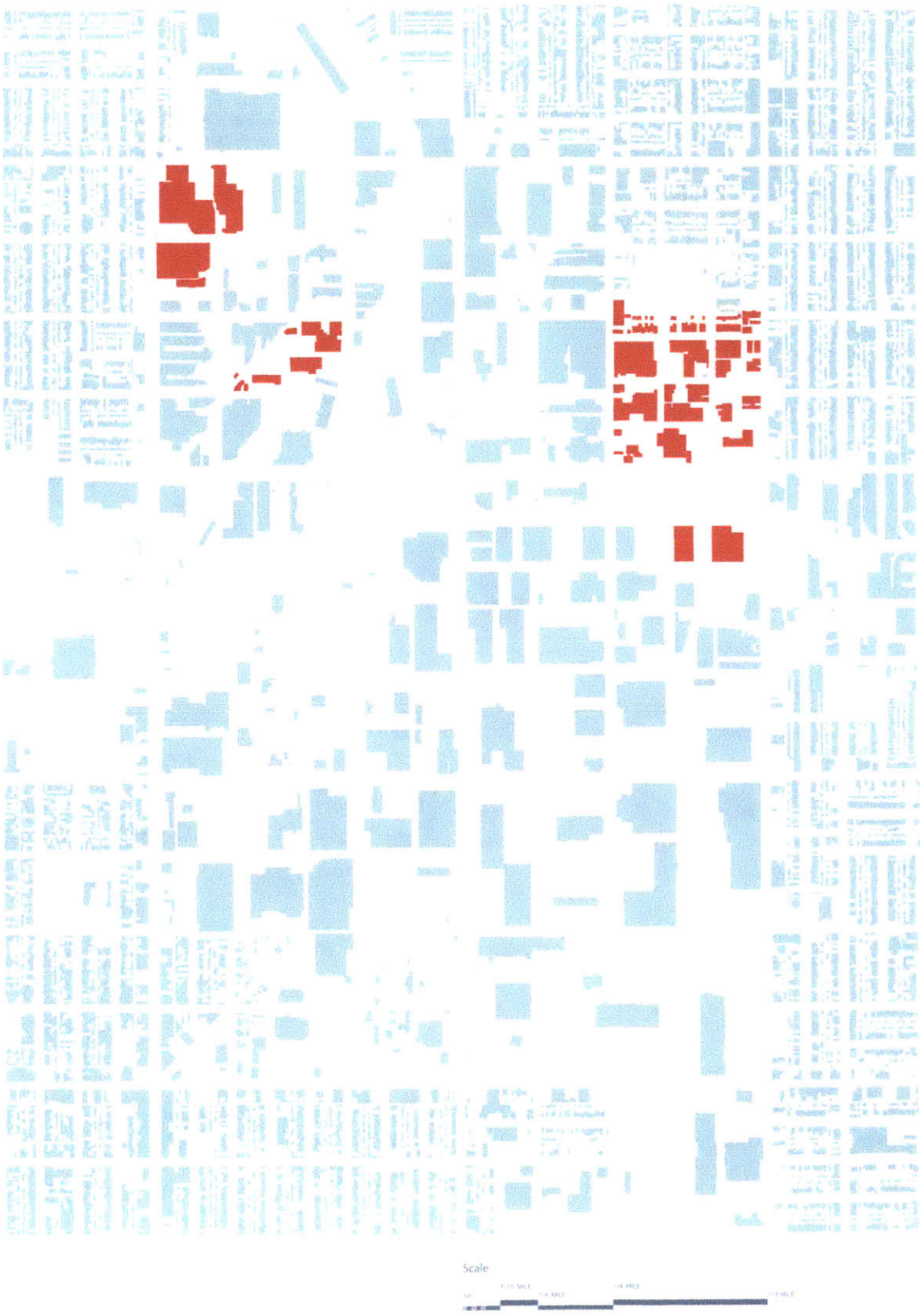


Figure: Phase 2

Figure: Phase 3

Figure: Phase 4

Figure: Phase 5

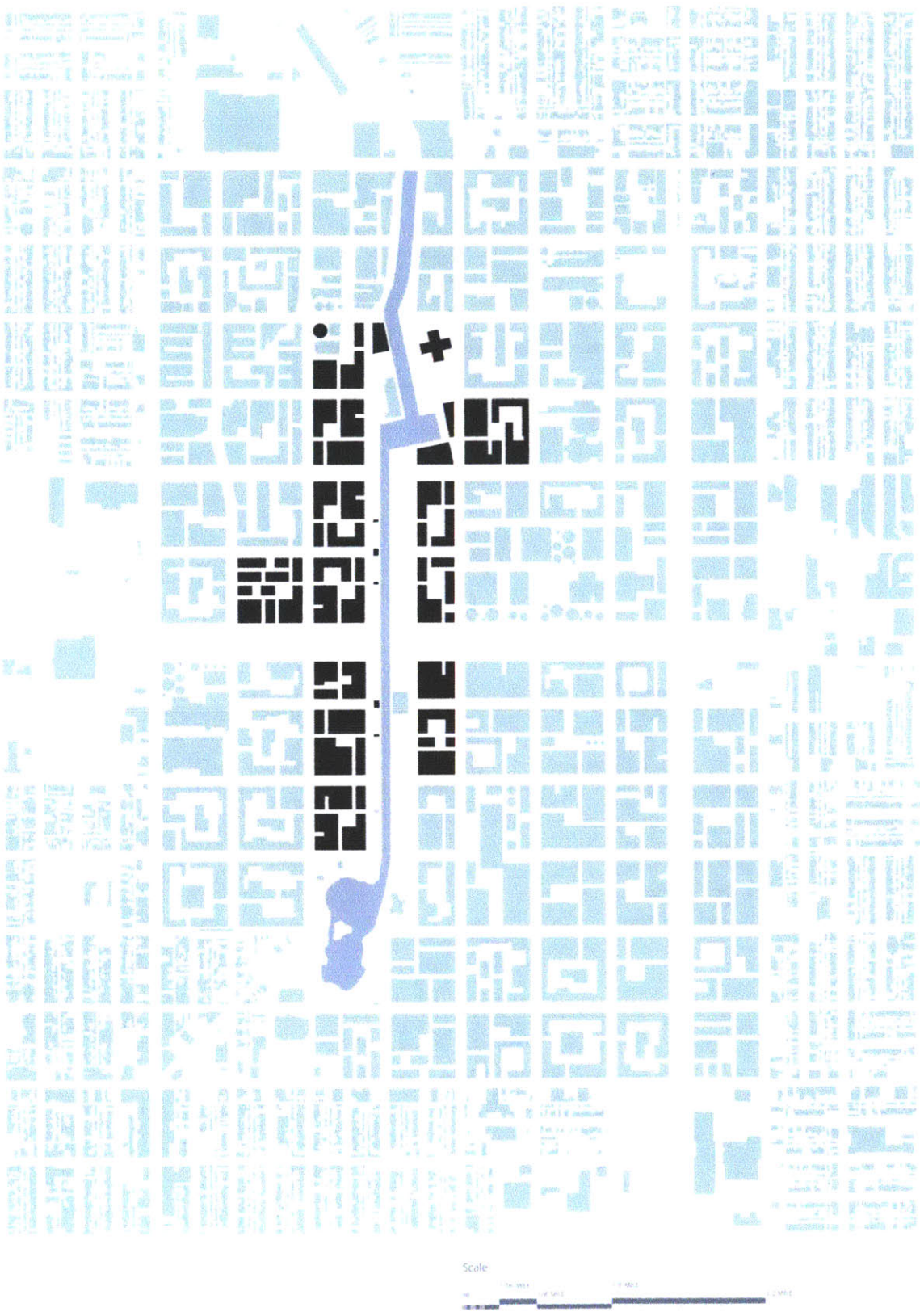


Figure: Phasing, Neighborhood Concepts

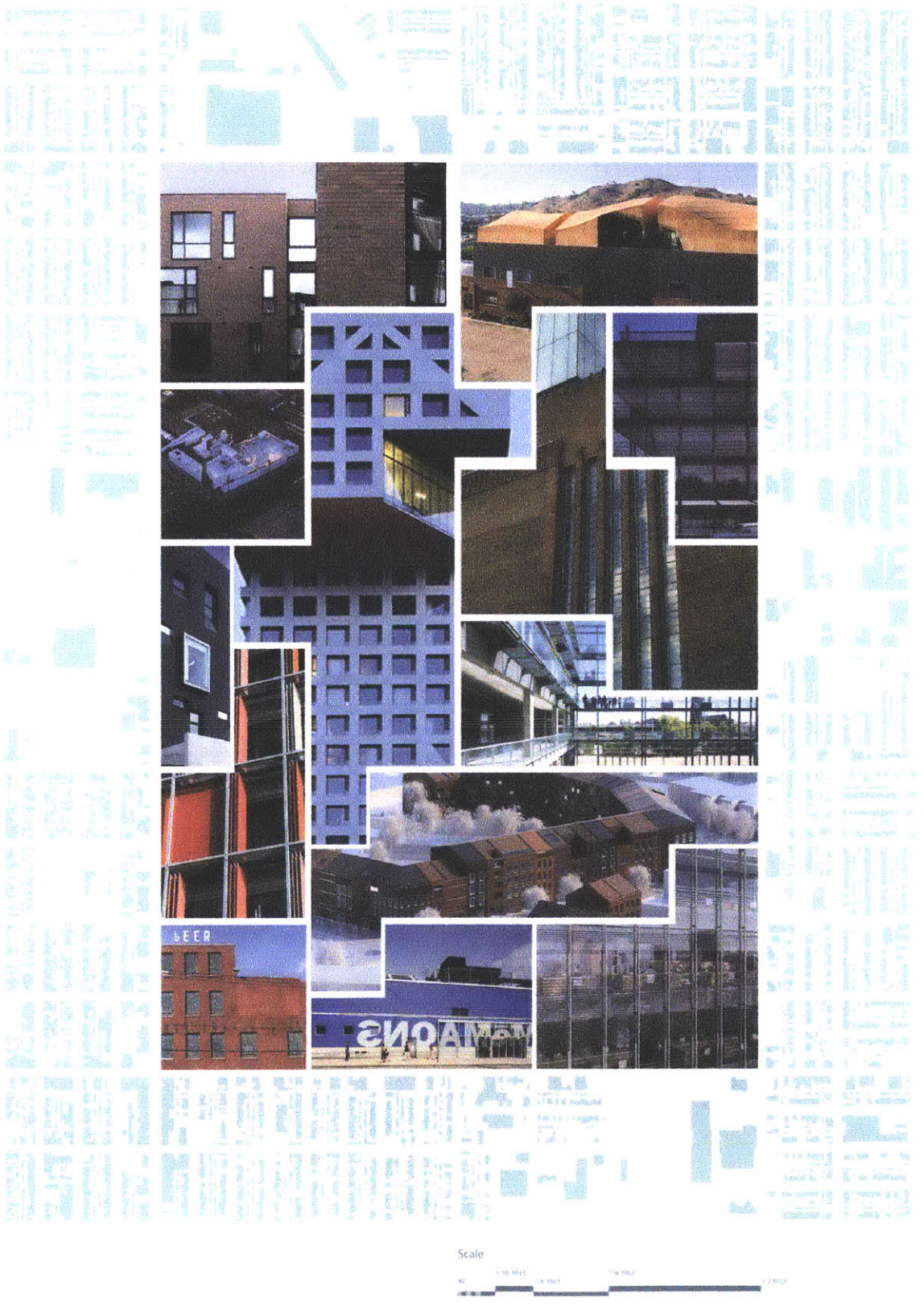


Figure: Superblock Urban Plan, Existing Superblocks

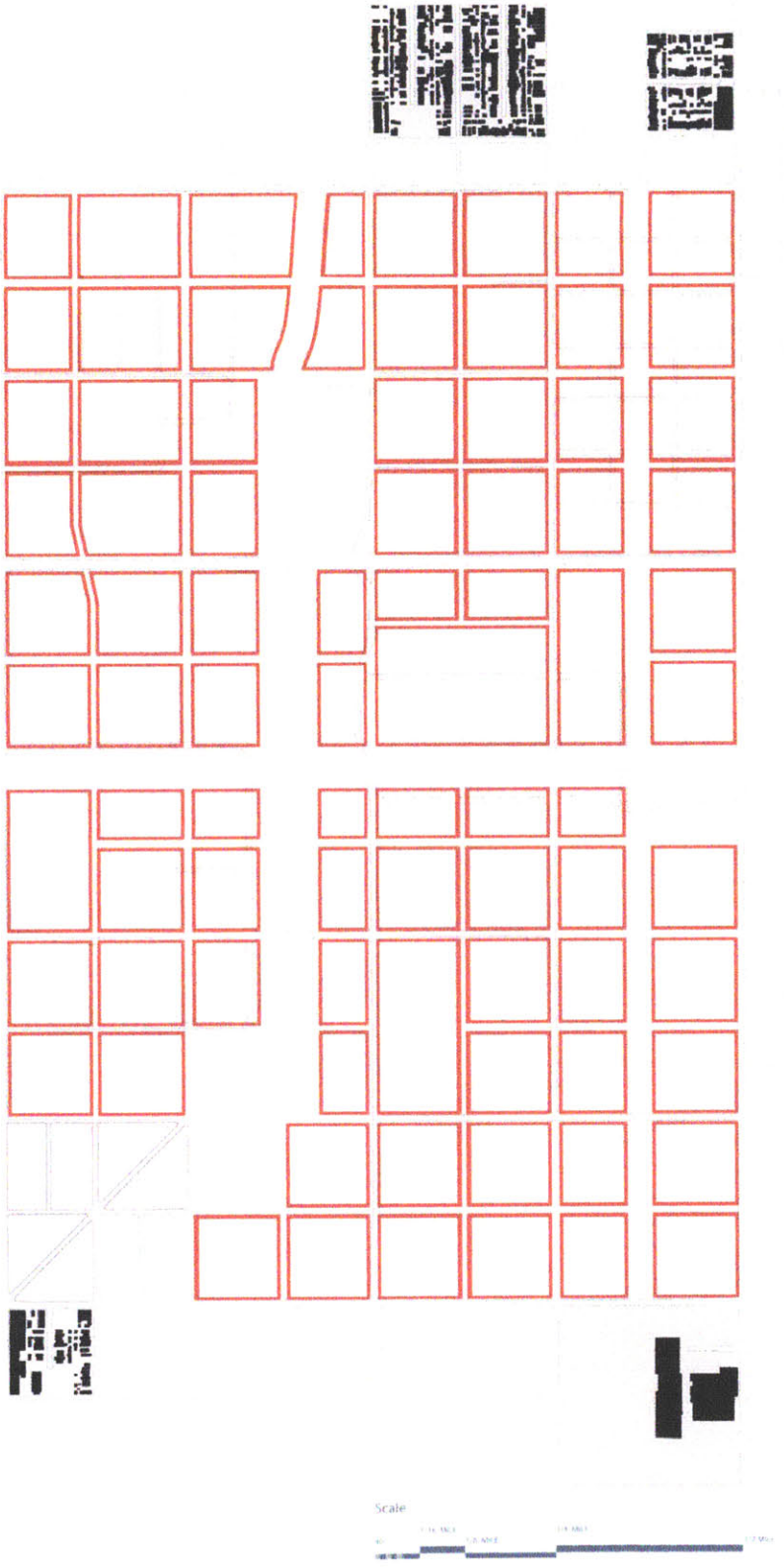


Figure: Street Hierarchy (widths 60' standard and 40' tree-lined with boulevards)

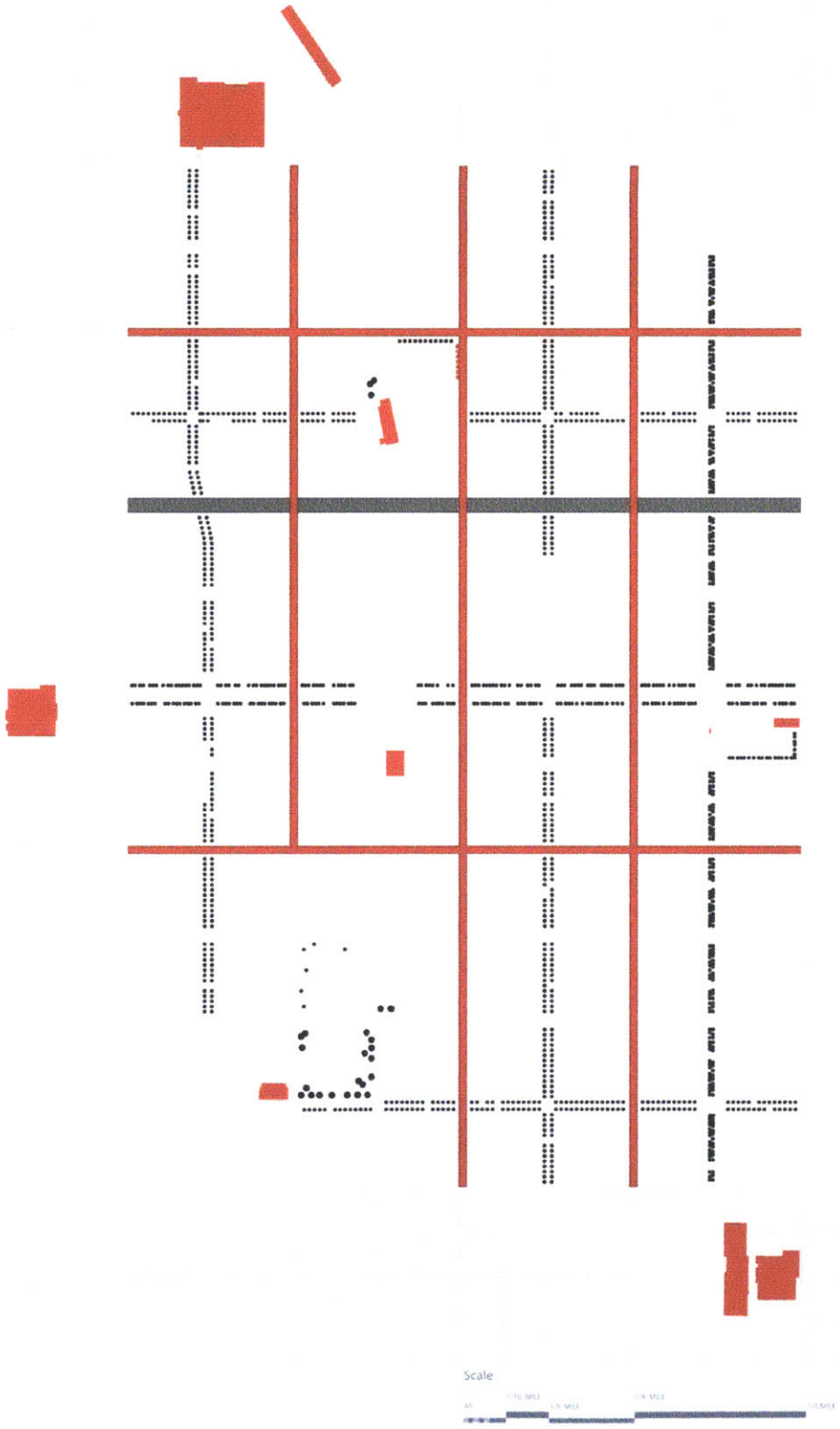


Figure: Five, Ten, and Fifteen-Minute Walk Radii

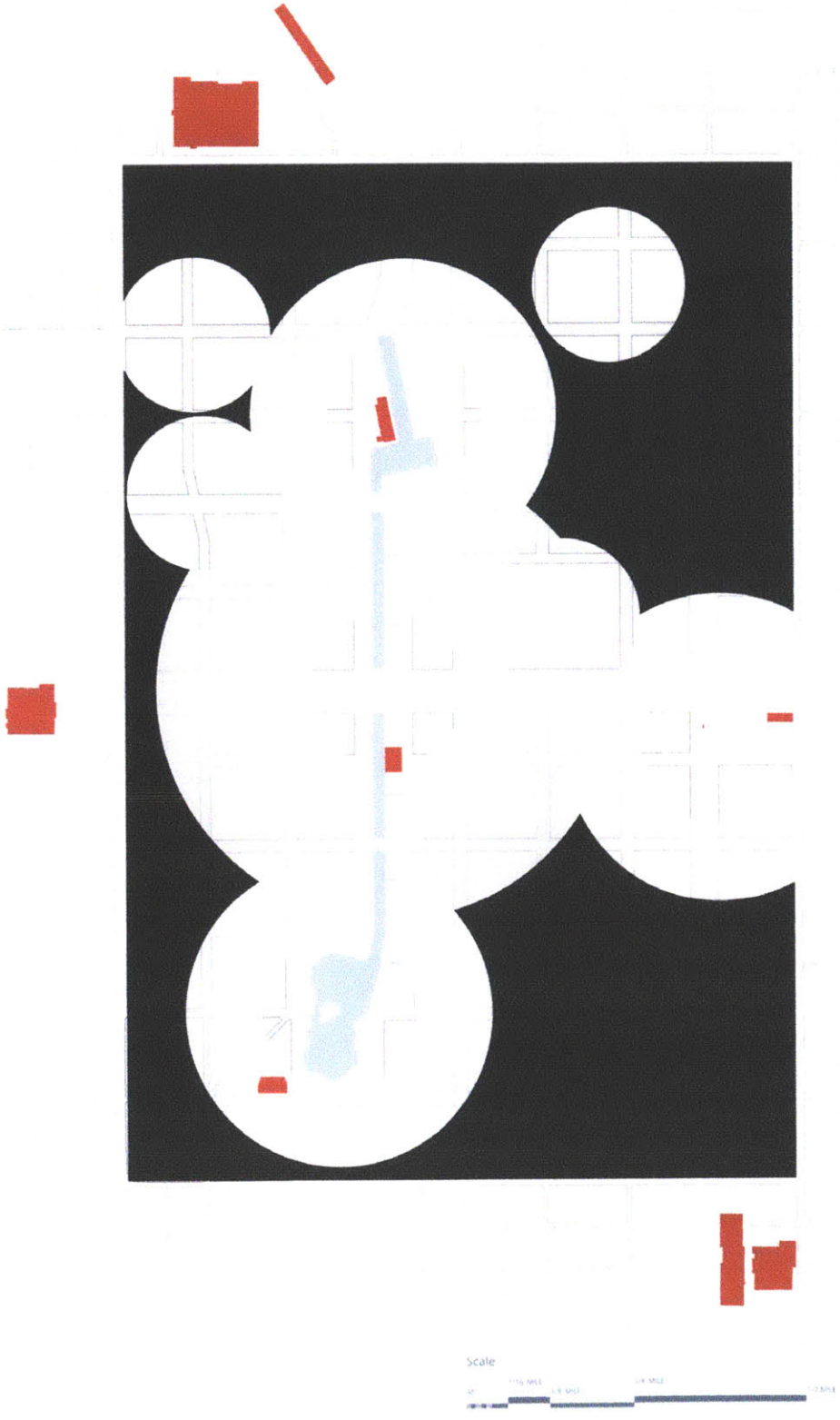


Figure: Public Spaces, Pedestrian Pockets (black outside blocks, gray inside blocks)

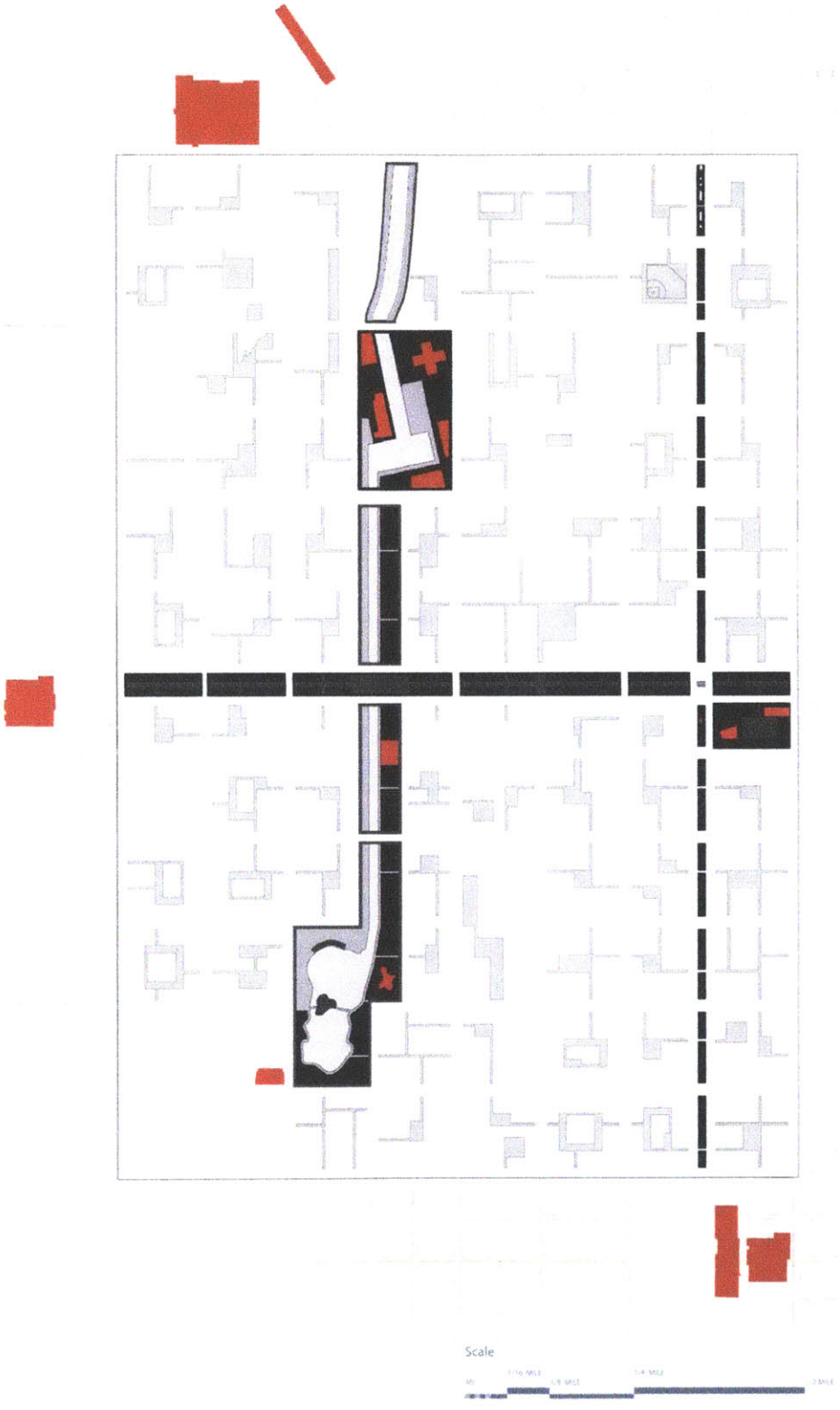


Figure: Proposed Illustrative Figure Ground

Figure: Existing Racine Avenue Pumping Station

This thesis anticipates that the Chicago River will reverse its flow in the near future – so that it flows into Lake Michigan as it originally did. The figure above shows what the headwaters of the looks like. One of the major focuses of the new design will be to convert this area into a proper arrival for boats coming from downtown, while, also, creating a new headwaters further south that acts as a reservoir and cleans water before it enters the Chicago River.

Figure: 3D SketchUp Model Birdseye View #1

Figure: Axonometric of Public Space as Infrastructure

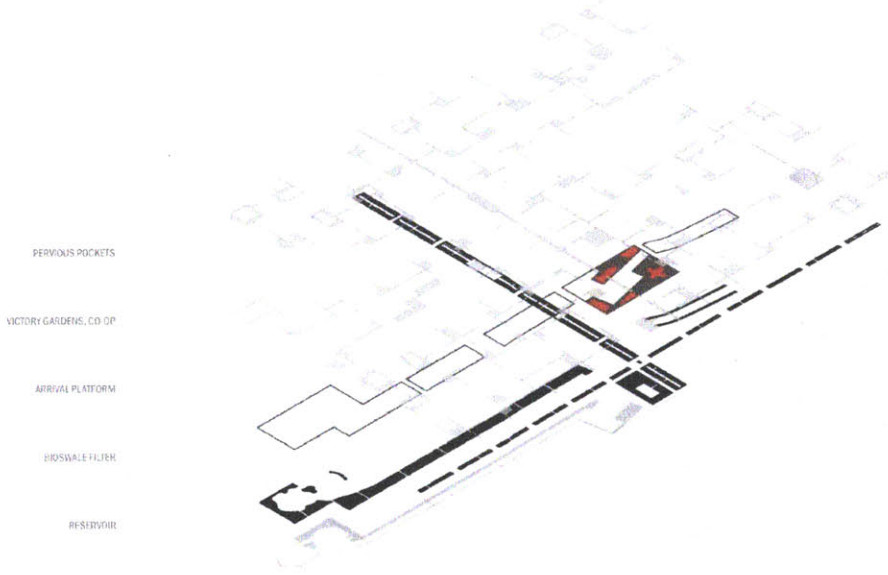
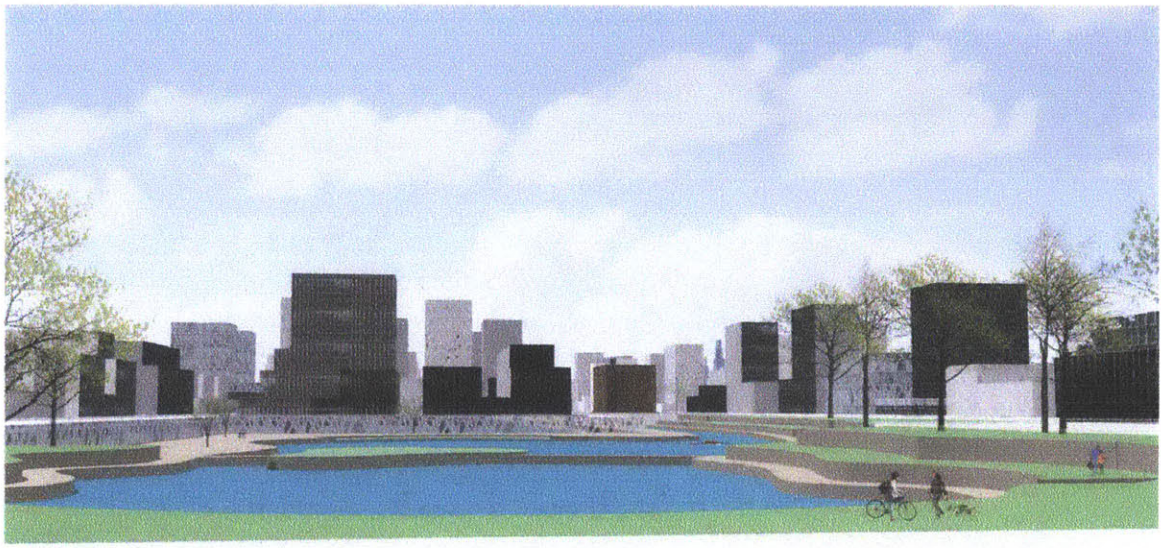


Figure: Perspective of Proposed Headwaters, Reservoir (retail strip below street level)



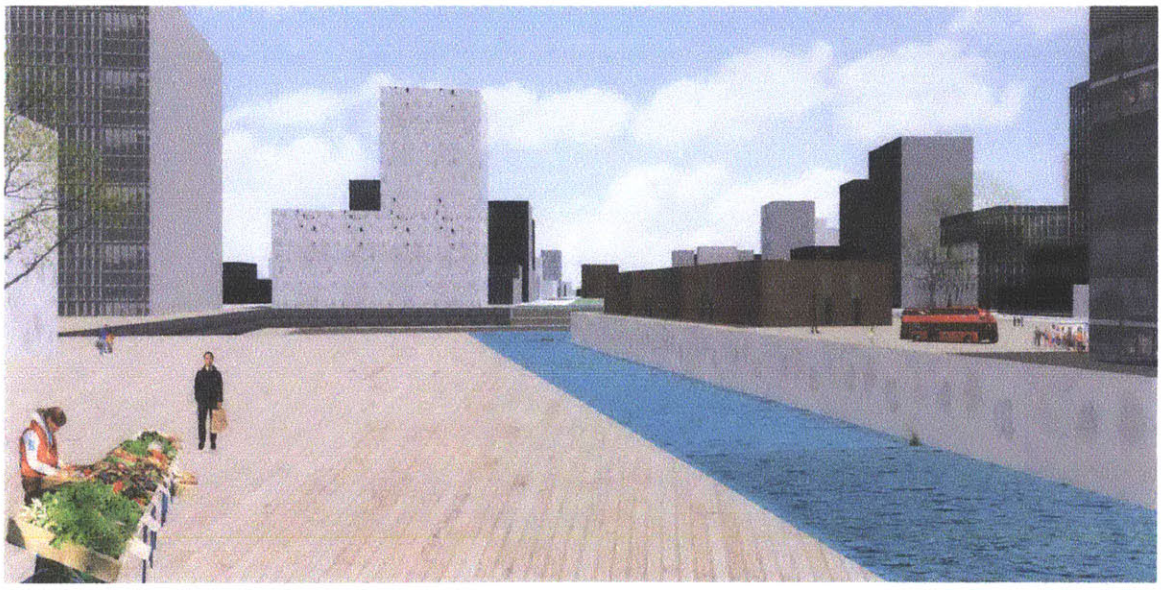


Figure: Perspective of Proposed Arrival Transit Dock (retail strip below street level)

CONCLUSIONS

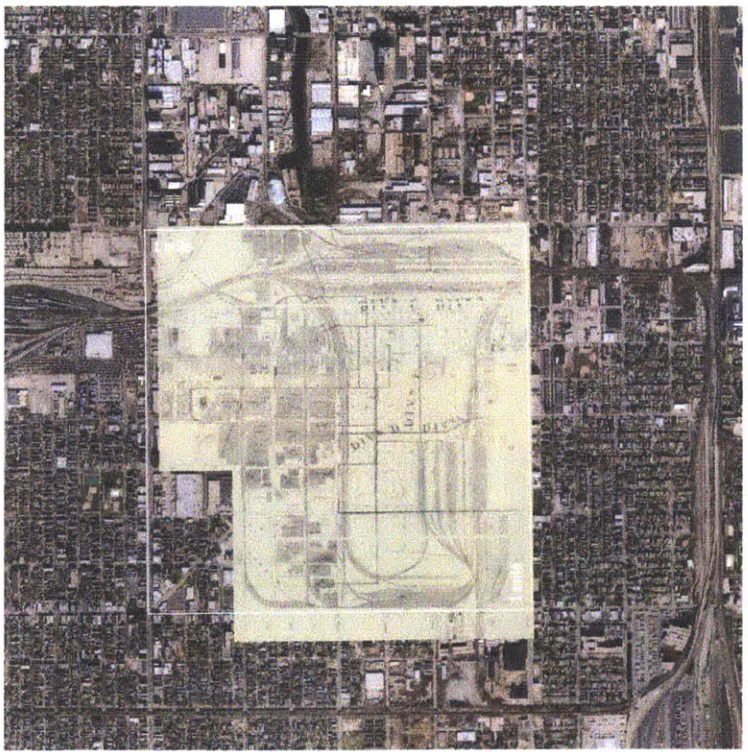
This particular site has a history of dependence on transportation. The New Food-Tech City should aim to break free of that cycle. Additionally, as we undergo technological paradigm shifts the New Food-Tech City provides a place in the city for people to work with their hands to make a living.

The principles that guide this new development should be:

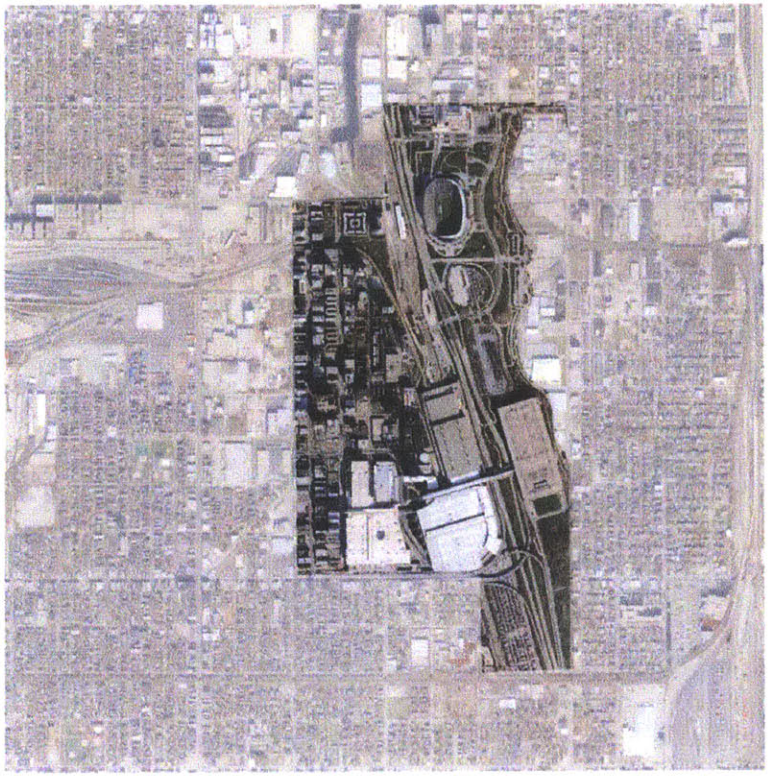
1) Convert zoning from mono-functional to multifunctional
2) Incentivize closed-loop food production and research
3) Absorb existing buildings and connect to Chicago grid with superblocks
4) Create a prominent public space for arrival along the river
5) Create a reservoir to clean water that recharges Lake Michigan

It is not by accident that Chicago is a city of momentous achievements (skyscrapers, parks, unions, green roofs) – Chicagoans are characterized by their ambition, which is paired with the financial means, political will, and a history of coming together for shared vision. Chicago has the means to germinate businesses that explore alternatives to the current resource intensive industrial food system; and, this could be achieved with support of Chicago's universities (such as Illinois Institute of Technology, University of Chicago, University of Illinois at Chicago, and so forth.) The New Food-Tech city would be beneficial to Chicago in that high quality food: promotes wellness, it can be socially equitable, and it attracts human capital.

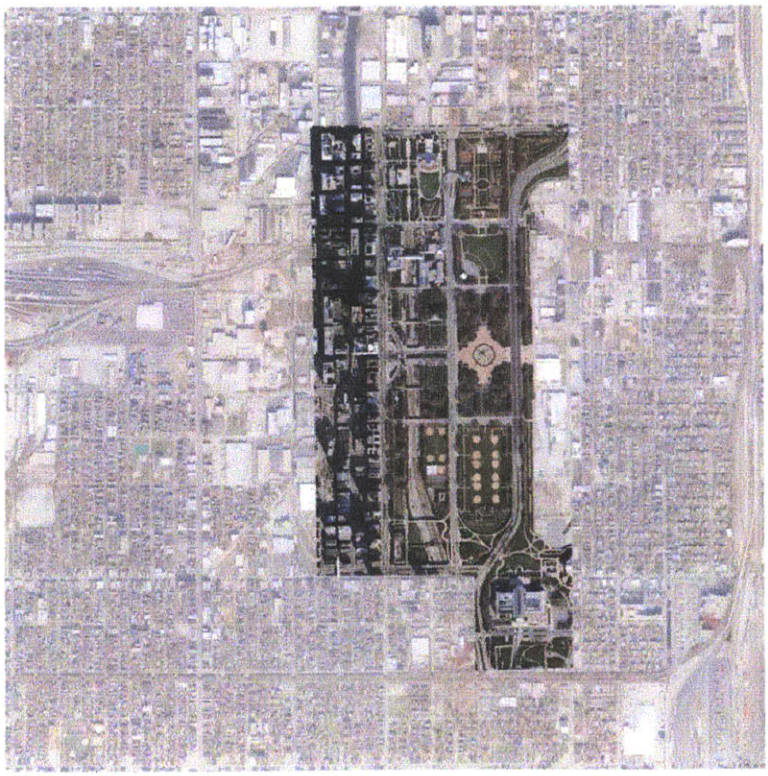
Appendix 1: Morphological Studies *(Source: Bing Maps, Photoshop Collages)*



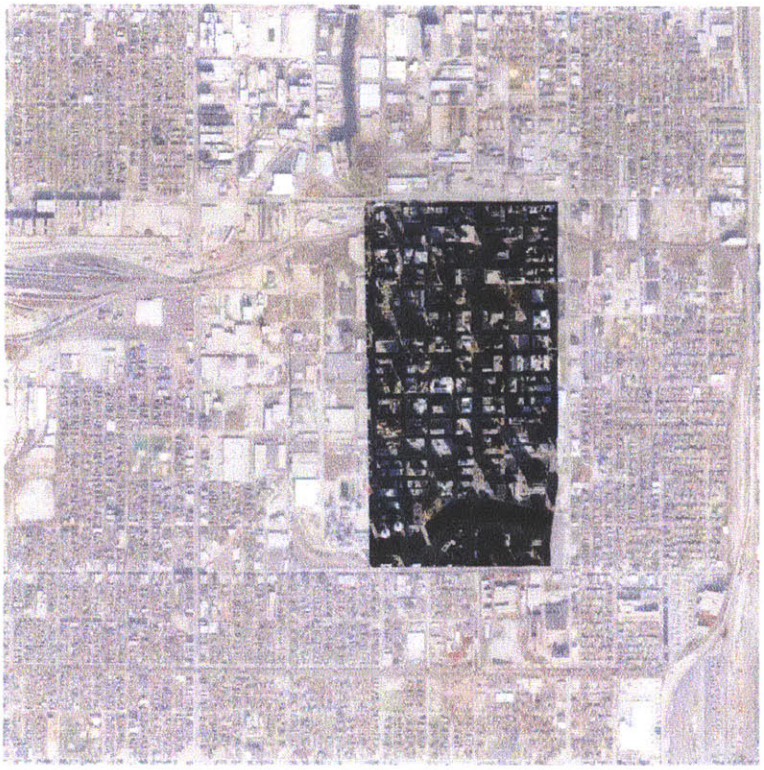
McCormick Place, Chicago



Grant Park, Chicago

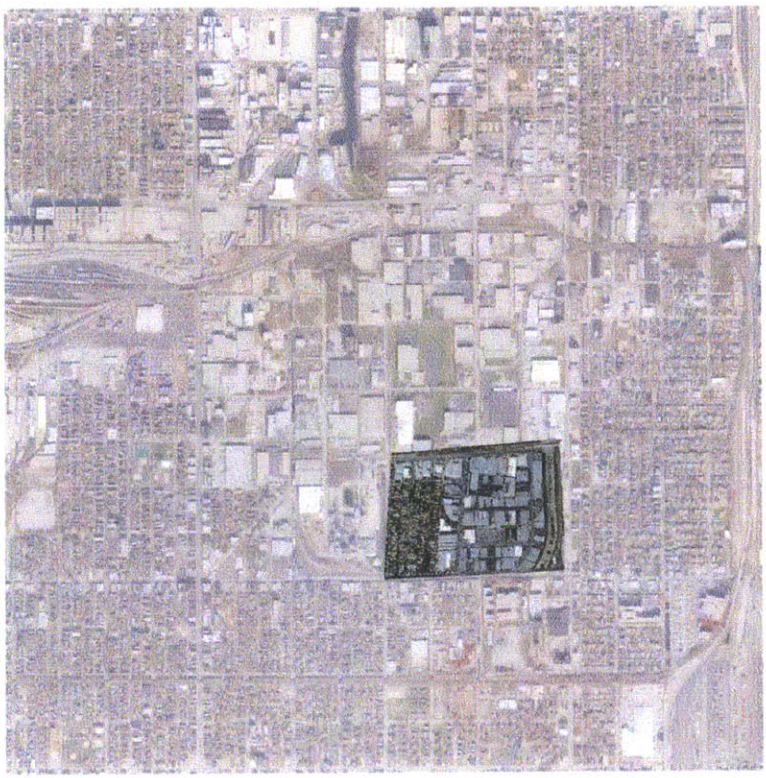


Magnificent Mile, Chicago

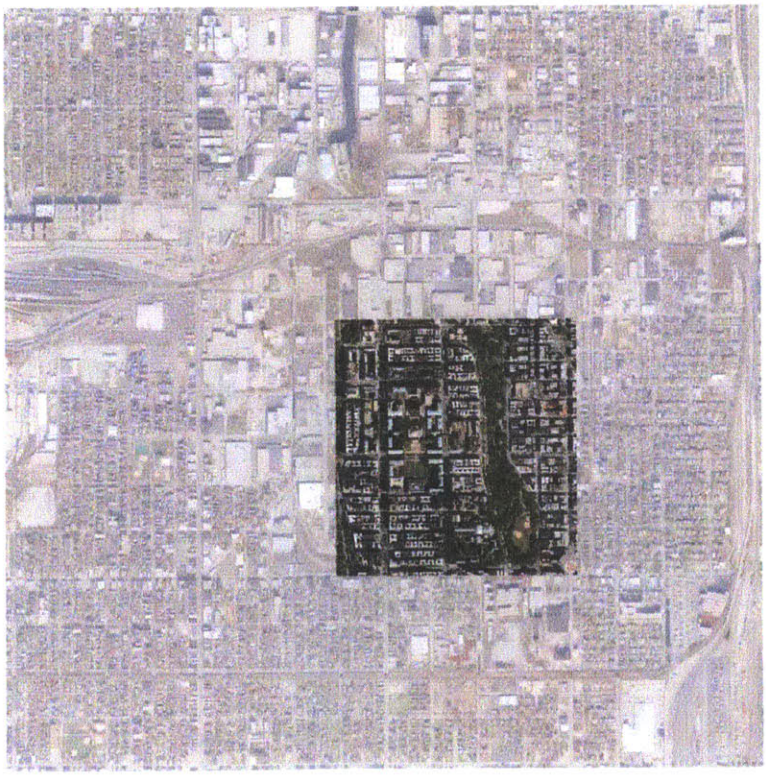


Back Bay, Boston

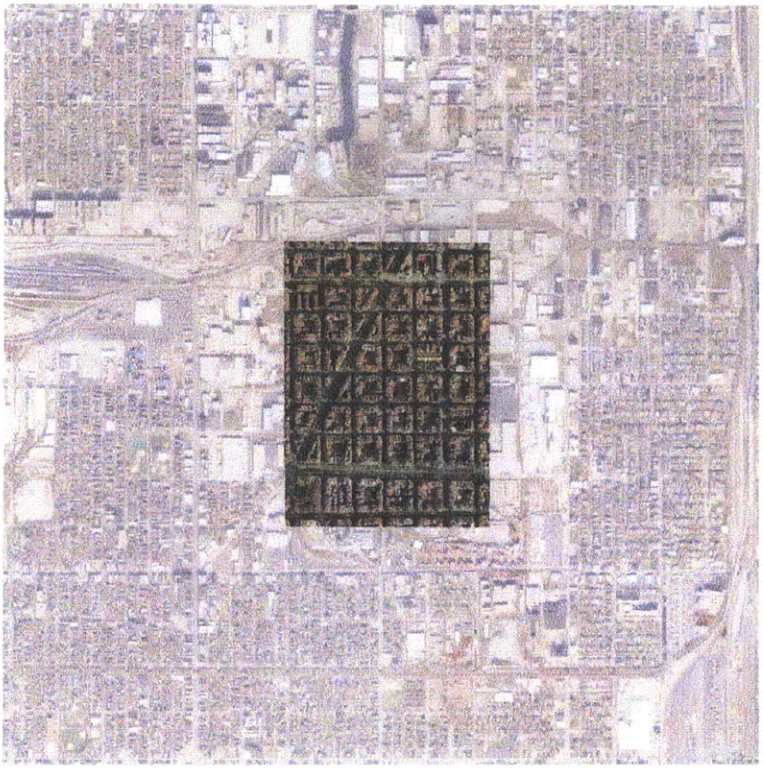
Culver City, Los Angeles



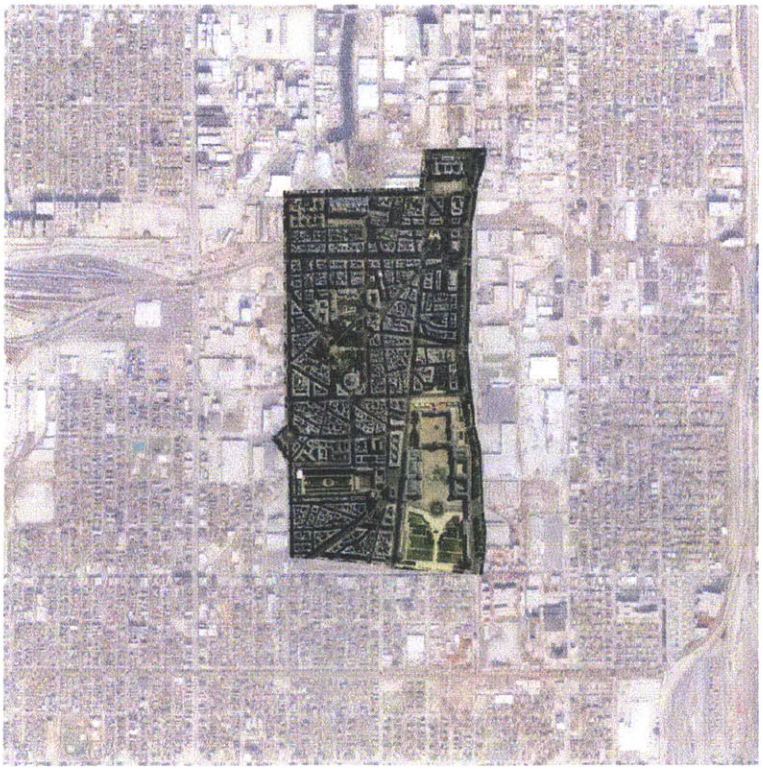
Columbia University, New York



Cerda, Barcelona

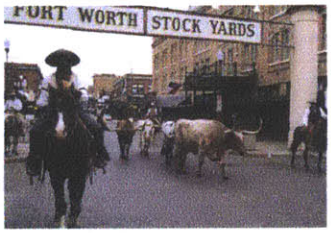


Lourve, Paris



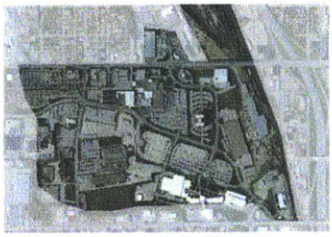

MIDWA

Appendix 2: Three Stockyards Today *(Source: Bing Maps, Photoshop Collages)*



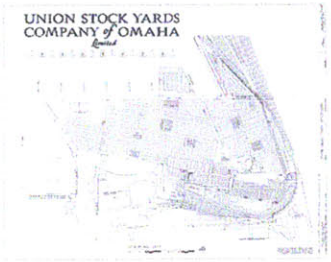
< TABULA RASA PARK . . . . INSUTRIAL PARK . . . . SIMILACRA STAGE SET >

PARIS, FR



OMAHA, NE

FORT WORTH, TX



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