

Right Turn in Albuquerque: Barelás Central Market Terminal

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RIGHT TURN IN ALBUQUERQUE



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“But that’s the challenge- to change the system more than it changes you.”
-Michael Pollan

“Eating is an Agricultural Act”
-Wendell Barry

When eating fruit, remember who planted the tree. When drinking water, remember who dug the well.
-Vietnamese Proverb

INTRODUCTION AND ABSTRACT

V.B. Price considers Albuquerque, New Mexico, a tributary city; it “connects with mainstream America, but its sources remain in the hinterlands (Price, 6).” The city itself is an amalgamation of historic Southwest forms and identities overrun with decades of postwar pragmatic attempts at maximizing Albuquerque’s national relevance while importing the decentralized automobile culture of California. In many ways, Albuquerque is a perfect laboratory city for studying the effects regional identity struggling against place-less suburban expansion, as the “hinterlands” of the Rio Grande basin offer identity, security, and longevity in the form of cuisine and agricultural legacy. This thesis is an analysis of Albuquerque’s *genus loci*; which is rooted deeply in the history and culture of the region. It is from this series of resilient identities that this thesis seeks to posit that food, and the Rio Grande Foodshed, could be a link to reaffirming regional identity and reinforcing local economic ties between the city and the agricultural lands surrounding it. The current access and resilience of the regional agricultural foodshed and urban identity of Albuquerque could be enhanced with the presence of a Central Market Terminal program; this type of program would allow for a multiplicity of economic interactions to occur within the region, not just on the farmer’s market scale, but potentially allowing a greater degree of accessibility to the food needs of Albuquerque and New Mexico. Essentially, Albuquerque encapsulates a multitude of issues surrounding mid-sized municipalities that require political, economic, and architectural solutions.



EATING IS AN ARCHITECTURAL ACT

“The great commerce of every civilized society, is that carried on between the inhabitants of the town and those of the country...”

-Adam Smith-An Enquiry into the Nature and Causes of the Wealth of Nations

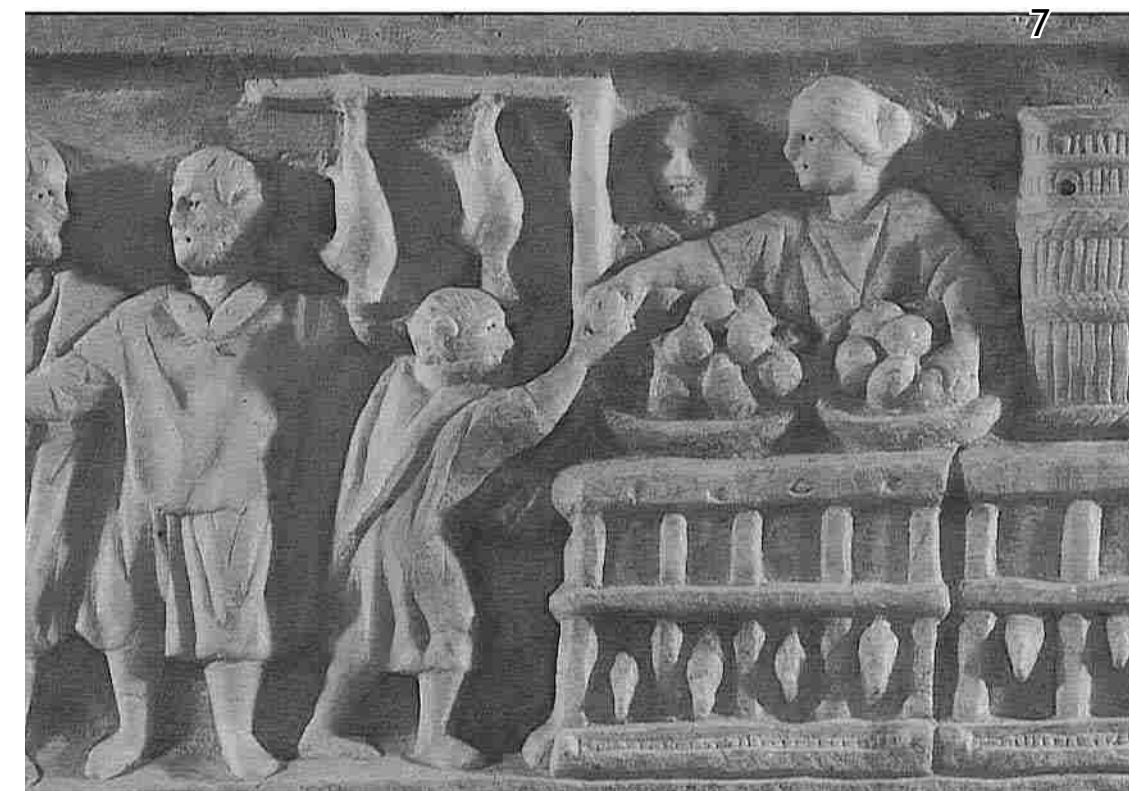
Architecture and agriculture are intimately linked. The story of human civilization is best understood by linking both endeavors in a crucible of human activity. Architecture and agriculture are extensions of what Manuel DeLanda calls “urban morphogenesis.” They are incubators of human thought and activity that eventually provide opportunities and methodologies for controlling and programming physical space. The two feed off each other, inform each other, and succeed or fail based on the success or failure of each other. “Indeed, urban morphogenesis has depended, from its ancient beginnings in the Fertile Crescent, on intensification of the consumption of nonhuman energy... the first such intensification was the cultivation of cereals. When food production was further intensified, humanity crossed the bifurcation that gave rise to urban structures (DeLanda 28.)”



The elites that ruled those early empires and cities in turn made other intensifications possible, by developing large irrigation systems or offering military protection to farmlands for example, and urban centers mutated into their imperial form. Control of a dependable, defensible food source enabled a political body to make long-term decisions about space and place, and the practice of architecture projected the image of power and longevity. All human empires, kingdoms, and republics have utilized the power of political architectural projection, backed by dependable sources of food.

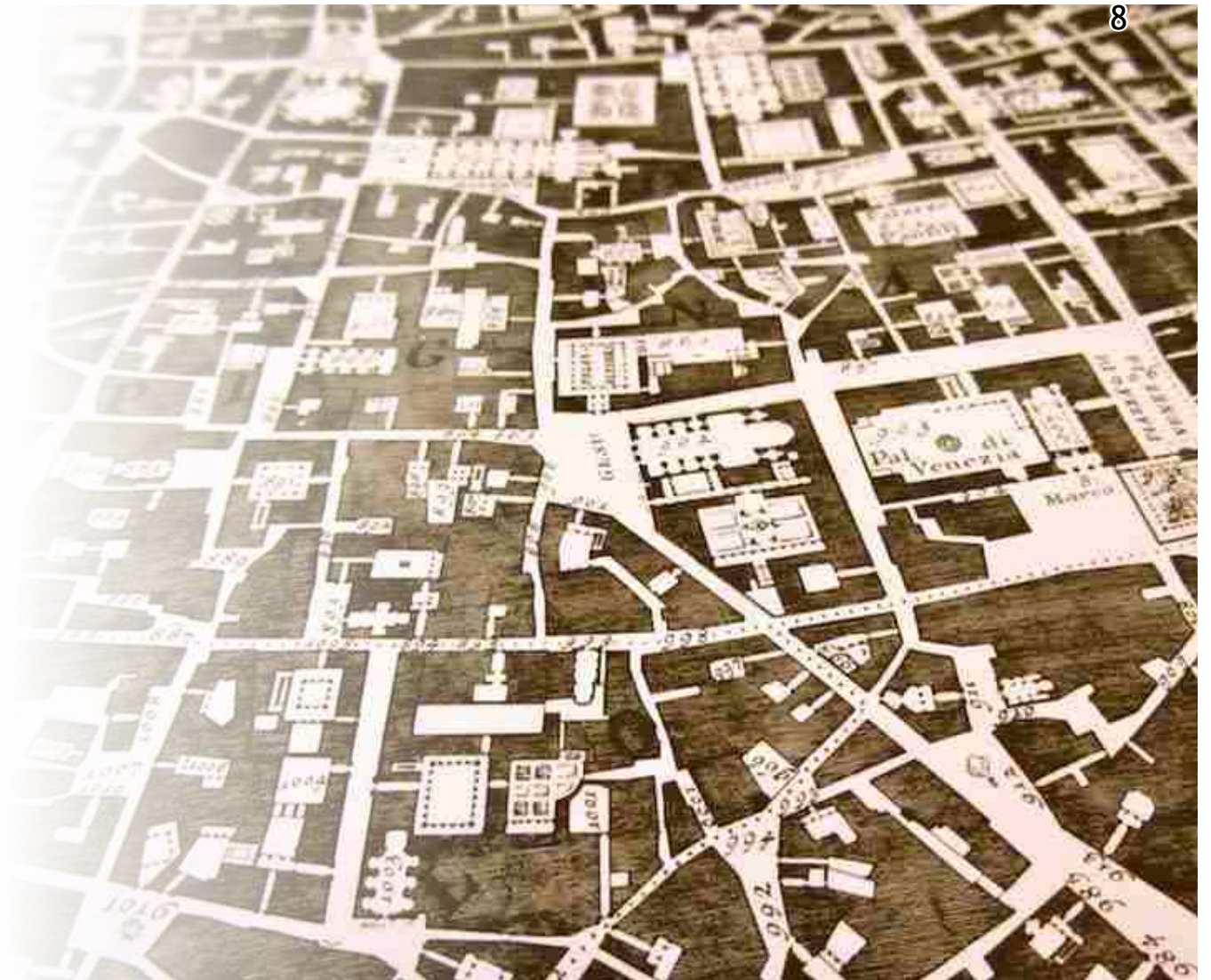
Food is a fact. It is an irrepressible staple, the basic fuel of urban inhabitants, and the humble master of both kings and peasants alike. Food cannot be ignored, nor can it be quickly conjured up. It is reliant on a network of relationships between actors, nature, and time. The power to orchestrate large-scale agricultural and earth-engineering projects requires tremendous political capital and necessitates violence and change of the landscape. Architecture and agriculture are inherently projections of power and permanence over both land and man.

The relationship of architecture to food is one that is simultaneously direct and indirect. The ability to store food for later use became a prime utilitarian role that architecture could be applied to. The wealth of early kingdoms could be, in a sense, directly linked to the size and capability of that kingdom's storehouses. Other direct applications of architectural solutions focused on the spatial needs of processing and distribution. New architectural and engineering typologies developed alongside the need to preserve, store,



transport, and sell crops. Early factories and quayside developments ensured that food could be handled at an appropriate scale. Indirectly, the architecture of food represented power and wealth. Royal storehouses could truly defeat famine, soldiers and laborers could be procured and paid with foodstuffs. Kingdom expansion gave rise to ever larger methods of securing sources of food, as well as providing the infrastructure to transport and handle agricultural bounty.

The formation of cities and urban centers was not just reliant on strong political leadership. The power of participation and the power of time resulted in patterns and traditions that far outstripped the singular vision of any king or architect. Human occupation of space, and the simultaneous existence of a multitude of human wants, needs, and ambitions animated streets and public markets. DeLanda regards the “mineralization of humanity” as a combination of “conscious manipulation of urban space by some central agency and of the activities of many individuals, without the central decider (DeLanda, 30).” The Marketplace is such a construction. It is formed out of an alliance of political planning and spatial organization, yet it requires the participation and activity of a multitude of vendors and participants to activate and bring the space to life. Examples of this coexistence can be seen in a full examination of early food distribution systems: large earthwork projects like aqueducts or irrigation projects, royal storehouses, and trading quays all bely political intent behind their creation. Yet the market hall, agora, and the street vendor are ephemeral expressions of tradition and cultural practice that mesh the network together.

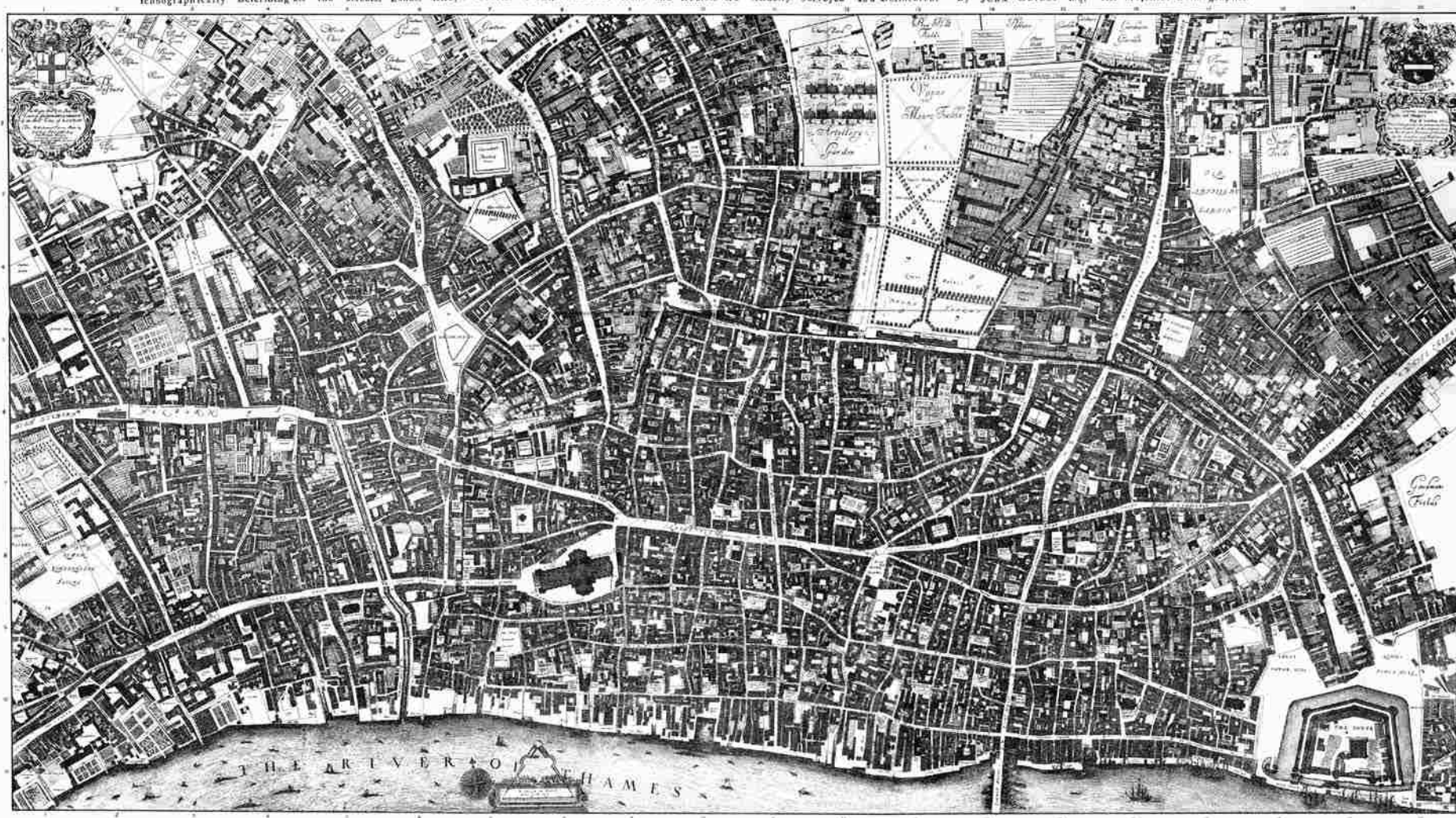


The marketplace developed over time as a convergence zone between the movement and distribution of food goods and the penultimate use of food- as human fuel in the home. Markets first appeared as specifically appointed places of exchange, in neutral territory, where differing groups could gather peacefully for their mutual benefit. “In antiquity, the official market place was located in the civic center- a large open square reserved for all public functions. The civic center, or agora as it was known in the ancient Greek world, served as the site not only for trade and commerce but also for administrative, legislative, judicial, social, and religious activities (Tangires, 9).” The market was thus a multiplicity of human interactions, far beyond basic commercial exchange; politics, education, theater, leisure. In many ways, “life in the streets” was life at the market. The rise and importance of market activities led to the designation of particular streets and squares for market purposes, which later fostered the development of entire commercial districts (Tangires).

The pre-industrial city exhibited these patterns, or meshworks as DeLanda calls them, that show an intense interrelationship between architectural intent and lived-in human practice. Spatially most pre-industrial cities followed similar urban layouts that were determined not simply by grids but by relationships with productive agricultural regions surrounding the city. The transport of food in the pre-industrial world determined early relationships within the city. The placement of markets, roads, civic centers, manufacturing and shipping industries, and large-scale public works derived largely from their relationship with the procurement and movement of vital natural resources.



A LARGE AND ACCURATE MAP OF THE CITY OF LONDON 13



Additionally, the way in which cities' rural hinterlands were arranged echoed a similar logic. The relational pattern phenomenon was first analyzed by the German landowner and geographer Johann Heinrich von Thünen in his work of 1826, *The Isolated State*. Von Thünen realized that most, if not all, pre-industrial cities exhibited similar relationships to their supply chain, and thus constituted the political state of city states, duchys, and kingdoms. The "state" consisted of a very large town or city in the middle of a featureless, fertile plane, the latter inhabited only by rational, profit seeking farmers. "Under such conditions...the farm belt around a city would organize itself into a series of concentric rings, like ripples from a pebble thrown into a pond. The innermost [rings] consisted of market gardens and dairies... with grain following, livestock land, and wilderness (Andraos, 67)."

Rivers and coastal cities provided a deviation, as the low cost of water transport would distort the rural hinterland, stretching it along the river's banks in a series of linear strips, and providing links to areas of production beyond the usual land-bound methods of transportation. Often, because of physical limitations surrounding city states, like Greek or Italian coastal cities, the lack of accessible farmland turned the sea-harvesting fishermen into a capable military that could secure more distant sources of food through defensible trade routes.

Trade goods like building materials, precious metals, and spices expanded the power of trade routes, but the temporary nature of food demanded proximity to accessible food sources and the power to secure and control these food sources. "Close" was determined by the product shelf life. "Far" could be other goods like timber, stone, and metal but transportation was still a mitigating factor. "Given the physical difficulties of getting food into town, it is hardly surprising that most pre-industrial cities were compact by modern standards. A day's journey by cart, a distance of around 20 miles, was the practical limit for bringing in grain overland, which limited the width of the city's arable belt. The simple laws of geometry meant that the larger a city grew, the smaller the relative size of its rural hinterland became, until the latter could no longer feed the former. Of course, cities on rivers could bring in grain from greater distance, but "even then the grain had to be carried to the river first (Steele, 71)." Over time the technological innovation of food preservation by means of fermentation or salt curing provided alternative methods for delaying the decay process, and developed into regional cultural expressions of cuisine.

EATING IS AN ARCHITECTURAL ACT

PHOTO CREDITS-

1-5- Market images (courtesy of Wikipedia- <http://en.wikipedia.org/wiki/Market>)

6. Trajan's Forum (MChism)

8. Noli Map (skewed)

7. Roman Market Bas Relief (courtesy of Wikipedia)

9-12 Market Roads/Urban Expansion Diagram (MChism)

13 A Large and Accurate Map of the City of London, (courtesy of the British Library <http://www.bl.uk/onlinegallery/onlineex/crace/l/00700000000002u00061000.html>)

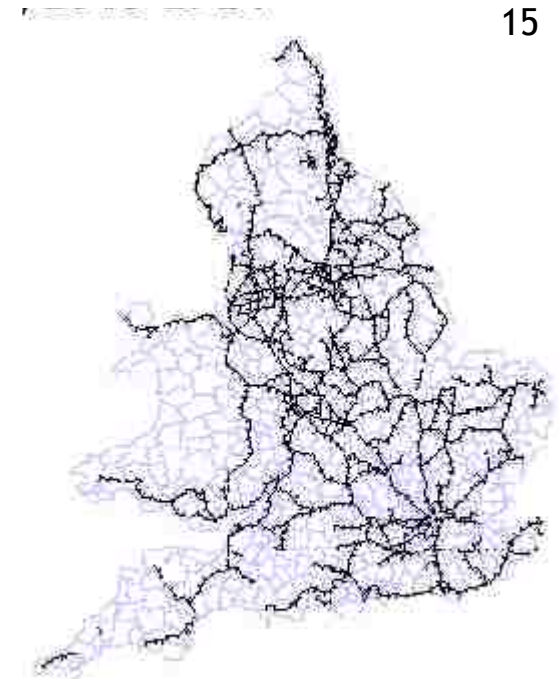
MARKET FORCES

CHANGE THIS- FIND THE MISSING QUOTATION

The revolutionary changes brought about during the industrial revolution went far beyond advances in manufacturing and commercial goods. Direct and indirect application of new ideas enabled practitioners of many disciplines to challenge traditional method of manufacturing. Working in concert with the revolution in ideas from the Enlightenment and Reformation, as well as the geopolitical revolutions in France, Britain, and the Americas, new astonishing forms of architecture, agriculture, and government began to take shape. The resulting post-industrial city was built on the premise of movement and transportation, free market commercial trade, and regional economic supremacy. New technologies like the steam engine were applied both in the field and as a source of transportation. They allowed for greater crop field efficiencies and, more importantly, a reliable delivery system capable of covering long distances in a short period of time. Produce and grocery items could now be sourced from further afield, and the previous agricultural boundaries that inhibited city expansion began to fade. Steam power gave way to the internal combustion engine and the patterns of transportation and agricultural efficiency expanded exponentially. Later advances in refrigeration, preservation, and production techniques allowed urban food sources to be considered on the global scale.



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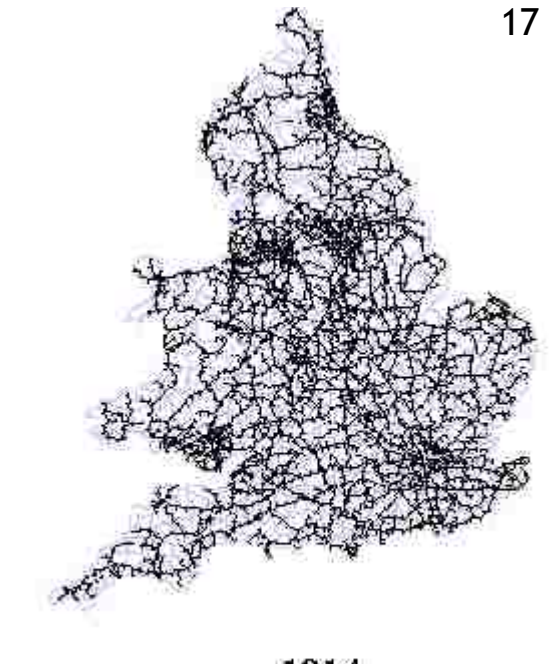
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1845

1854



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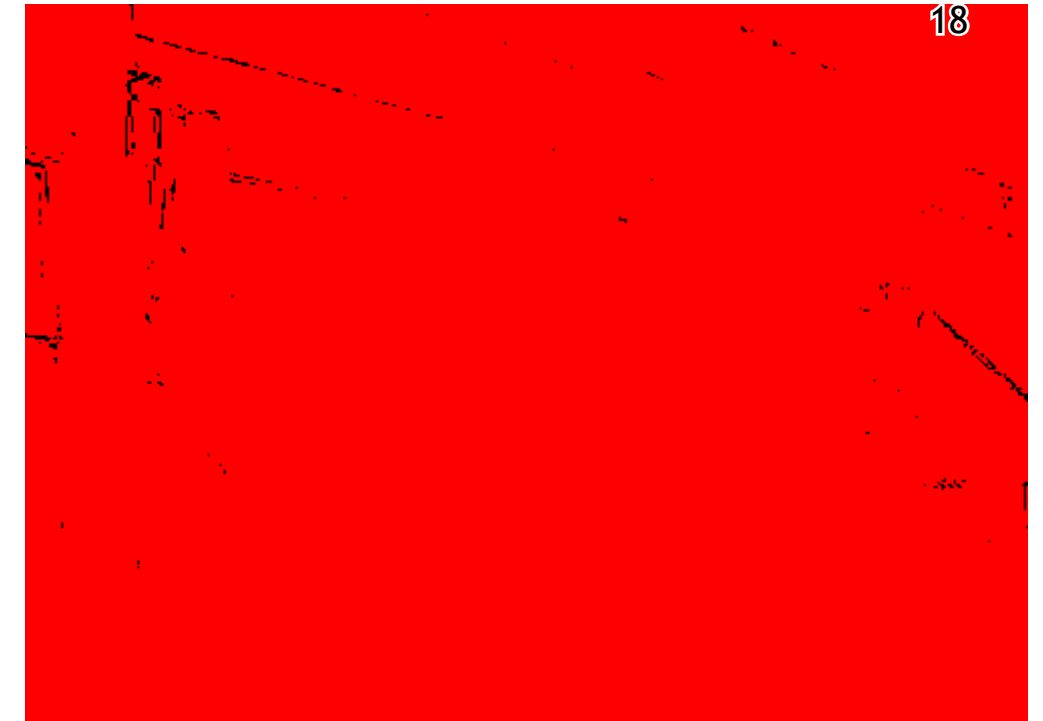
17

1876

1914

The city street market, traditionally a place of commerce derived from centuries of wagon ruts and regional traders, became a relic based on past constraints. The traditional relationship between farm and city moved from a direct, spatially compressed interrelationship to a global series of logistics, transfer specialists, and technology. Central market terminals and wholesale markets began to dot the outskirts of cities, providing a central landing point for goods coming from rail, cart, and ship. New places of commerce, associated with new methods of transportation and distribution, began to dot the cityscape. The United States in the early 20th century showed the totality of this new system, as well as the shift toward privatized grocery food handling. “During the 1950’s and 60’s, construction of new market houses waned in the United States, owing to several national trends in the postwar era. Public investment in new market construction declined with the rise of the chain supermarket (Tangires, 30).”

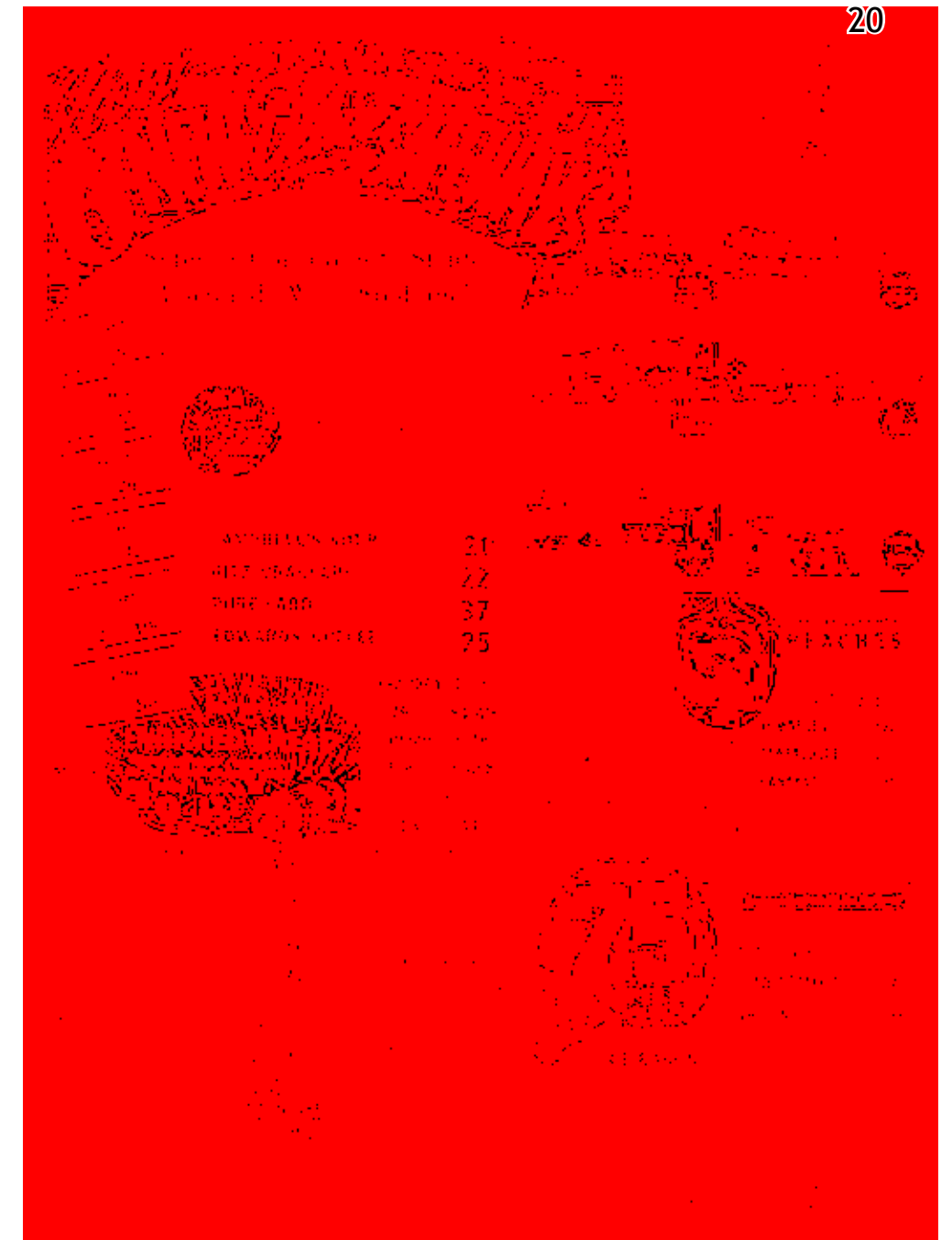
By the 1950’s, the corner grocer and the public market were almost a distant memory for most Americans. The central market system, while good at coordinating food delivery for dense urban populations, was subverted by privately controlled distribution chains. As suburban expansion continued to erupt at an alarming rate, food purveyors realized that the supermarket model was the new go-to food delivery system to reach the car-enabled citizen.

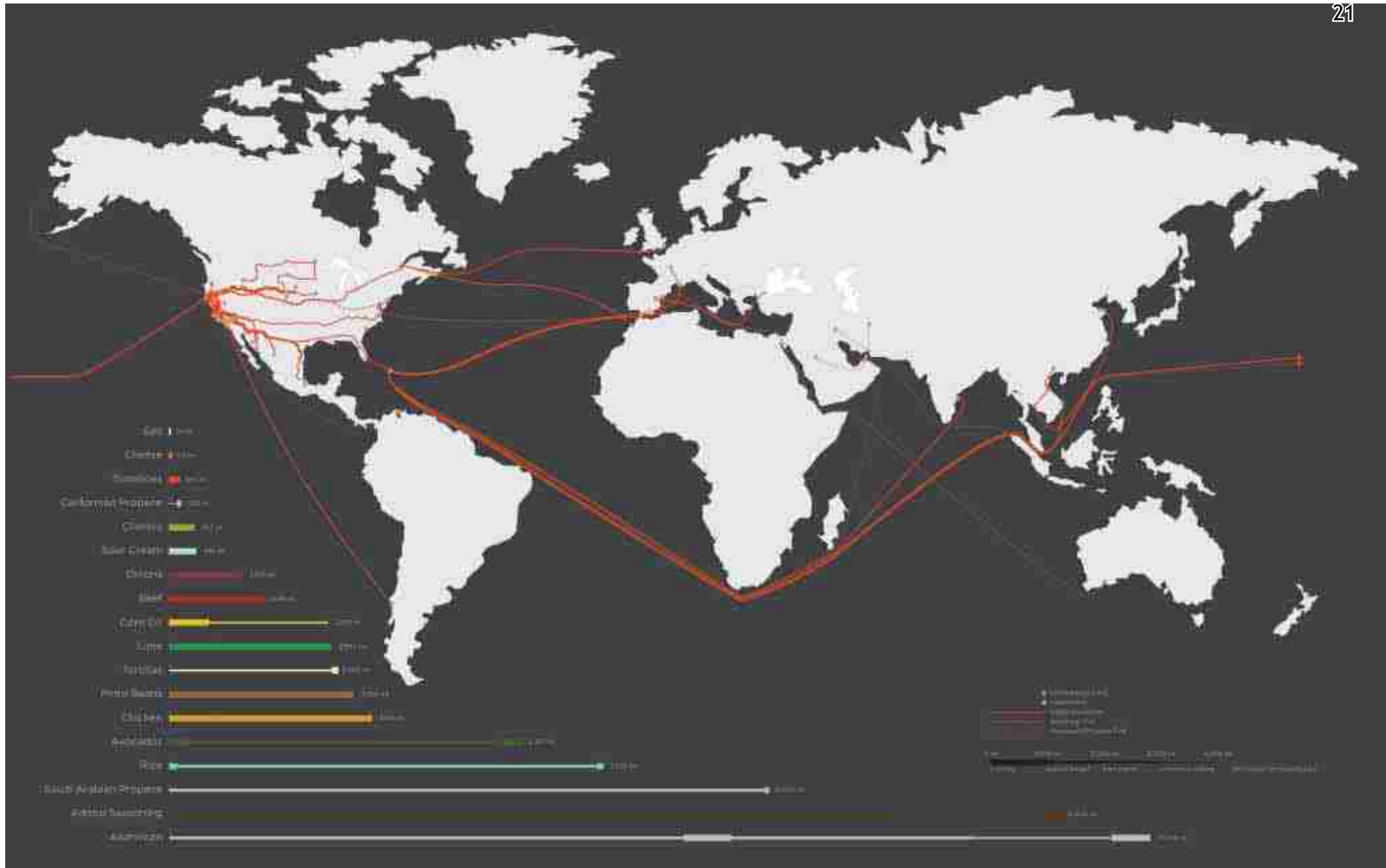


. The low-density, self-sufficient, and independent suburbanite could easily fill a home refrigerator and pantry with foodstuffs purchased in an oversized shed, and the logistics of delivering goods to those sheds were alarmingly simple.

The food system in the United States was quickly dominated by large food conglomerates, whose global reach and vertically integrated supply networks provided a dependable supply of shelf-stable and refrigerated goods regardless of end location(Steele).

Supermarkets' privately controlled distribution channels provided another opportunity for low-cost, efficient methods of purchasing and warehousing to be employed. These methods in turn affected the source farms' and factories' ability to profit from the inherent inefficiencies in seasonal farming. Large-scale farms and producers became the providers of choice for grocery chains. The industrial manufacturing methods of farming generated economy-of-scale efficiencies, thus producing extremely large crop yields at lower production prices. This cemented the relationship between supermarket and agribusiness, and the two worked in concert to regulate governmental policies and scientific research for mutually beneficial results. Vendors and purveyors to traditional central public market system were easily priced out of competition and incapable of supplying the ever-expanding city with convenient locations for the car-enabled citizen. Corporate food entities, utilizing mass-market advertising techniques, helped to abstract food into brand identities, further disassociating the traditional regional relationship between farm and city. Clean, safe, and packaged foods offered the modern consumer the perception of convenience, great prices, and year-round availability.





The development of the interstate highway system enabled the trucking industry to dominate the country's food distribution system, further eliminating large-scale civic investment in central markets and rail-oriented distribution. "These factors, coupled with urban renewal projects that often disregarded neighborhood institutions, including market houses, made it all but impossible for public markets to survive (Tangires, 30)."

MARKET FORCES

Photo Credits

14-17- The Extension of the Rail System in the United Kingdom 1845-1914 (courtesy of https://www.mtholyoke.edu/courses/rschwartz/rail/intro_hist_gis.htm)

18-19- Images of the earliest recognized US grocery chain, Piggly Wiggly. (courtesy of <http://www.groceteria.com/store/national-chains/piggly-wiggly/>)

20- Grocery Advert, 1941 (Courtesy of <http://www.groceteria.com/wp-content/uploads/2010/07/spokane-1941.jpg>)

21- Your Taco Deconstructed- painstaking evaluation of all ingredients and energy sources utilized to produce a single dish, to illustrate the global nature of modern food. (courtesy of www.good.is/posts/your-taco-deconstructed.)

OPPOSITIONAL THINKING

“The prime villain in all this, and a lifestyle choice made early and rarely questioned, is our love affair with the automobile. We have become addicted to driving. Most Americans rely on cars to meet the most basic needs of life. We cherish the freedom of the road and safeguard it with a zeal that suggests it was written into the Constitution. Americans drive more than any other society on Earth and are locked into doing so by choosing to live, work, and shop in out-of-the-way places that demand driving.

-Douglas Farr (Farr, 23.)”

By the end of the 20th Century, the American way of eating and living was successful in many ways, but ultimately remains questionable in its sustainability. The overall health of the middle class American is on the decline, rates of obesity are on the rise, and health-oriented maladies range from lack of exercise due to our car-centric development to the unavailability of fresh, unprocessed food. “Our lifestyle, to put it simply, is on the wrong course. The evidence is all around us. The lifestyle we, the American middle class, have selected has led to a serious deterioration of public health. We have become a sedentary population, deprived of exercise, and the result is a rising incidence of obesity....Why have we grown obese? Several reasons can be found in the spatial environment we have designed for ourselves” (Farr, 20.)



In 1996 the food policy expert Marion Nestle reasoned that a mere 20% of US food expenditure went to producers. The rest went on to added value items, 'labor, packaging, transportation, advertising, and profits' (Steele, 95). The economics of food production had shifted from producer to purveyor and marketer. The money made from farming was directly related to the branding and marketing message, as well as to the compounded efficiencies found in the vertically integrated logistical supply chain. "Feeding cities these days is very big business indeed, but...you have to be at the right end of the food chain in order to profit. Power in the modern food industry has shifted more than ever away from farmers, to those who control the food supply chain" (Steele, 101.)

Many of these compounding logistical efficiencies are directly related to cheap oil. Almost every aspect of farming, from the running of machinery to making fertilizers and pesticides to transportation, processing, and the preservation of produce, is directly related to cheap oil. Carolyn Steele estimates that nearly eight barrels of oil are consumed each year to feed a single American citizen (Steele, 49.) The American food system is, as Michael Pollan states, drenched in fossil fuel.

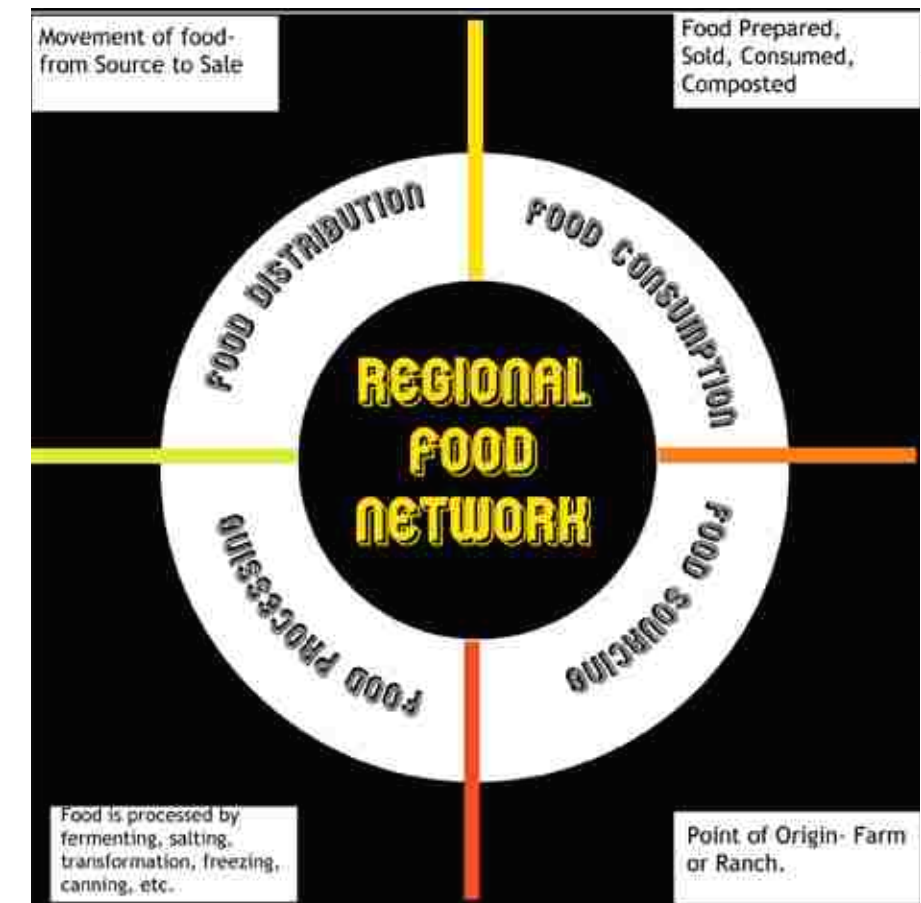
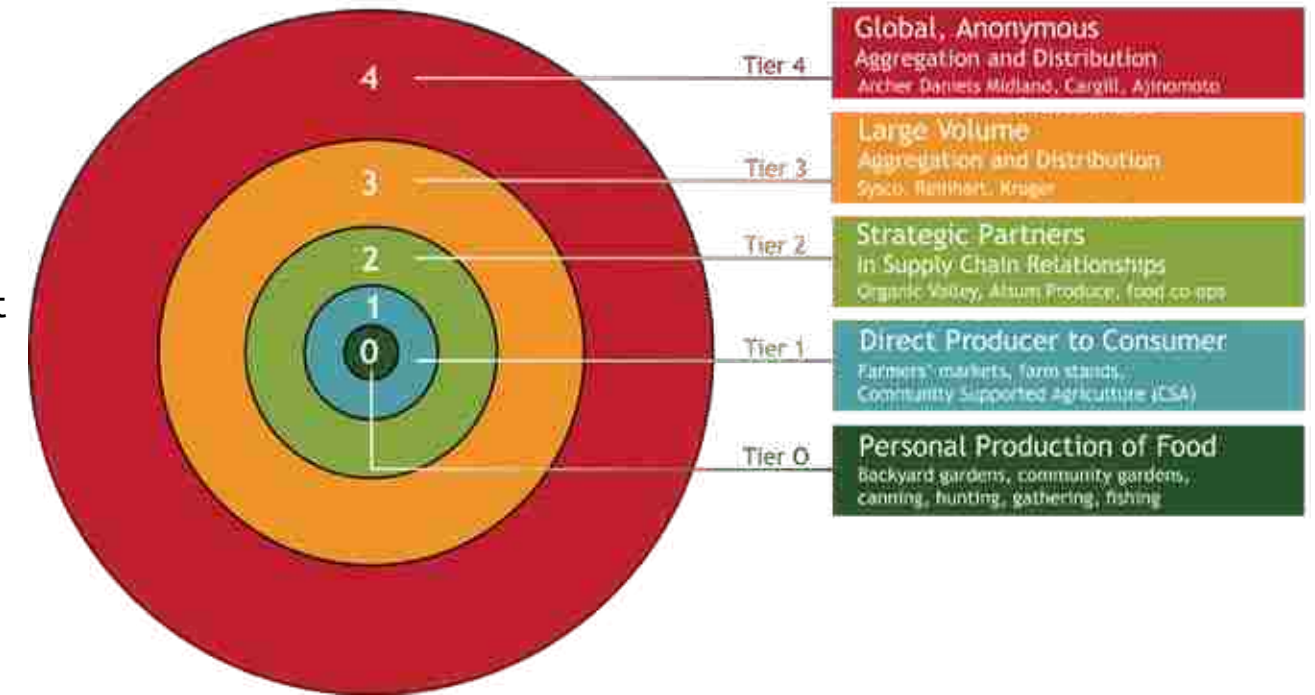


“Modern city-dwellers demand constant supplies of cheap, predictable food, and agribusiness has evolved to produce just that. The food we eat today is driven not by local cultures, but by economies of scale, and those economies apply to every stage of the food supply chain. In order to feature in the urban diet nowadays, produce not only has to be bigger, better and breastier than ever before; it also has to be capable of withstanding the rigours of a global distribution system the aim of which is to deliver fewer and fewer products to more and more of us- that’s how economies of scale work” (Steele, 59.)

The supermarket system has other flaws as well. Many urban and suburban regions are critically underserved by private grocery chains, despite having the population density and development potential to support such an endeavor. The causes of food deserts are numerous: poverty, ethnicity, geography, and ownership. Privatized supermarkets are under no obligation to provide for every citizen. They build where developers and speculators believe a profit can be made, which often leaves large swathes of urban and suburban developments completely reliant on private modes of transportation. “The myth of a city without supermarkets is hard to kill, even faced with the evidence above. Ultimately, that myth perseveres because the mainstream media and its audience is steeped in a suburban mentality where the only grocery stores that really seem to count are those large, big-box chain stores that are the only option in so many communities these days, largely because they have put locally-owned and independent stores like the ones you find in Detroit out of business. It is true that the big chain stores have forsaken or ignored Detroit, for any number of understandable (and sometimes despicable) reasons. But in their absence, a diverse system of food options has risen to take their place, and the tired old narrative that Detroit has nowhere to shop for groceries needs to be replaced by a more complex truth: with a diversity of options ranging from the dismal to the sublime, Detroit may be one of the most interesting places in America to shop for food” (Griffioen, 2011).

However, a series of oppositional views on food and food production has continued to gain traction throughout the US. Many view the petroleum-dependent system as an unsustainable model given predictions of global oil shortfalls and future ecological cataclysms that are directly related to fossil fuel consumption. Other criticisms of modern food production include decreasing biodiversity within large industrial monoculture farms, increased dependence on genetically modified strains of consumable plants, lack of transparency of growth and distribution practices, and a decreased flavor profile. The criticisms of global food, although broad and sometimes questionable, have created a groundswell of interest in rethinking the urban food supply. This can be best illustrated through the interest in organically produced food, the slow-food movement, and a growing interest in regional and local eating. More than a niche or sentimental farmer's market, there are some movements to rethink the production and source of food in spite of industrialized practices and supply chains, with the intended result being a more "sustainable" and direct relationship between city dwellers and the source of food.

New concepts, like the foodshed concept, look to hybridize older urban-rural relationships with newer technology and concerns. The foodshed, a concept that is relatively analogous to a watershed, aims to view cities within a regional agricultural support network. The foodshed model knits together various aspects of agricultural products into a meshwork of understanding: foods that are produced from farms within a particular geographic range that share easy regional transportation solutions, that share in the municipal watershed, and are seasonally and regionally adapted are considered to be part of a region's foodshed. The foodshed implies a network of producers, biodiversity in the planted crops, and a broad spectrum of end consumers and users. It is an extension of both the organic and local food movements, but it attempts to incorporate more holistic and far-reaching concepts like regional food security, biodiversity, and resilient economic interplay. Foodshed thinking can expand other networks of farm-consumer relationships, coalescing previously disjointed efforts like a small-farm Community Supported Agriculture (CSA's) and coop farmers' markets into a powerful, regional food system. "...the idea of the local to make any sense at all, needs to be seriously modified. Instead of being defined in terms of simple geographic distance, the local should be seen in terms of the kinds of transportation and distribution efficiencies that define modern markets...How can the strategies of urban design be adapted to deal with these new conditions of proximity and density?" (Ranking, 503.)



Architects and planners can facilitate this process by integrating food systems in two basic ways: through food production and through food access. Proper zoning regulations will allow for communities and individuals to produce their own food. In communities, points of food access can be treated with minimal economic investment and infrastructure. Many towns and villages have begun to strategically plan by conducting a comprehensive needs assessment of the local foodshed. This can include easements for on-site agricultural production, land-trust protection schemes like Local Exchange Trading Systems (LETS), supported Farmers' Markets, and CSA coops. Brownfields or derelict sites within the city can be converted to community gardens or agricultural reclamation projects. Insurgent pop-up gardens can be employed to immediately transform underutilized public space into productive regions. Larger-scale architectural interventions like vertical farming schemes, rooftop gardens, and agriculturally oriented buildings are additional, albeit higher-cost, methods of reconnecting cities with food. The challenge becomes one of analysis, or rather a balance of coexisting alternative methods of production and exchange that could fit the fabric and ethos of a city.





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The Central Market Terminal could be a solution. The Central market typology provides a distribution hub and a place of concentration for both incoming produce and produce buyers. Produce buyers could peruse agricultural products for wholesale purchase, and these items could be locally delivered to grocery, restaurants, and institutions like the University of New Mexico. Additionally, the central market enables average citizens to purchase food goods directly from producers in a market hall setting.

This brings us to Albuquerque, New Mexico.



31



32

OPPOSITIONAL THINKING

Photo Credits

22- Organic greenhouse, by Ken Hawkins (Image courtesy of <http://sagemagazine.org/how-the-next-farm-bill-will-hurt-sustainable-agriculture-and-help-industrial-farms/>)

23- “Wordle” constructed on Sustainable Agriculture Word Cloud (<http://www.wordle.net/>)

24-Food Networks diagram (Courtesy of UW-Madison Center for Integrated Agricultural Systems, August, 2010. www.cias.wisc.edu)

25- Regional Food Network Market Components Diagram.

26- Cener for Urban Agriculture, (Courtesy of Mithun)

27- Public Farm 1 (PF 1) (Courtesy of <http://work.ac/>)

28- Brooklyn Grange- world’s (current) largest rooftop garden. (Courtesy of <http://inhabitat.com/world%E2%80%99s-largest-rooftop-farm-kicks-off-second-growing-season-in-brooklyn/>)

29- Pallet garden- <http://www.theblockhouseschool.org/2012/07/building-a-pallet-garden/>

30-32- Centro De Abastos Market, Mexico City. Just about everything from fruit and vegetables, flowers, birds and meat, fish and seafood to dairy products, groceries, sweets, seeds, cereals, -In all, it generates more than 10 billion dollars annually and supplies the daily needs of 25 million people. It is the country’s largest business center, second only to the Mexican Stock Market, and is the largest wholesale market of its kind in the world. As one of 60 central markets located nationwide, Mexico City’s Central Wholesale Market (CA) is the backbone to the traditional market segment in Mexico. While modern retailers are well entrenched locally, the traditional central market segment still handles over 50 percent of all food products sold in Mexico. (Image Courtesy if Wikipedia)

ALBUQUERQUE: CITY AT THE EDGE OF THE WORLD

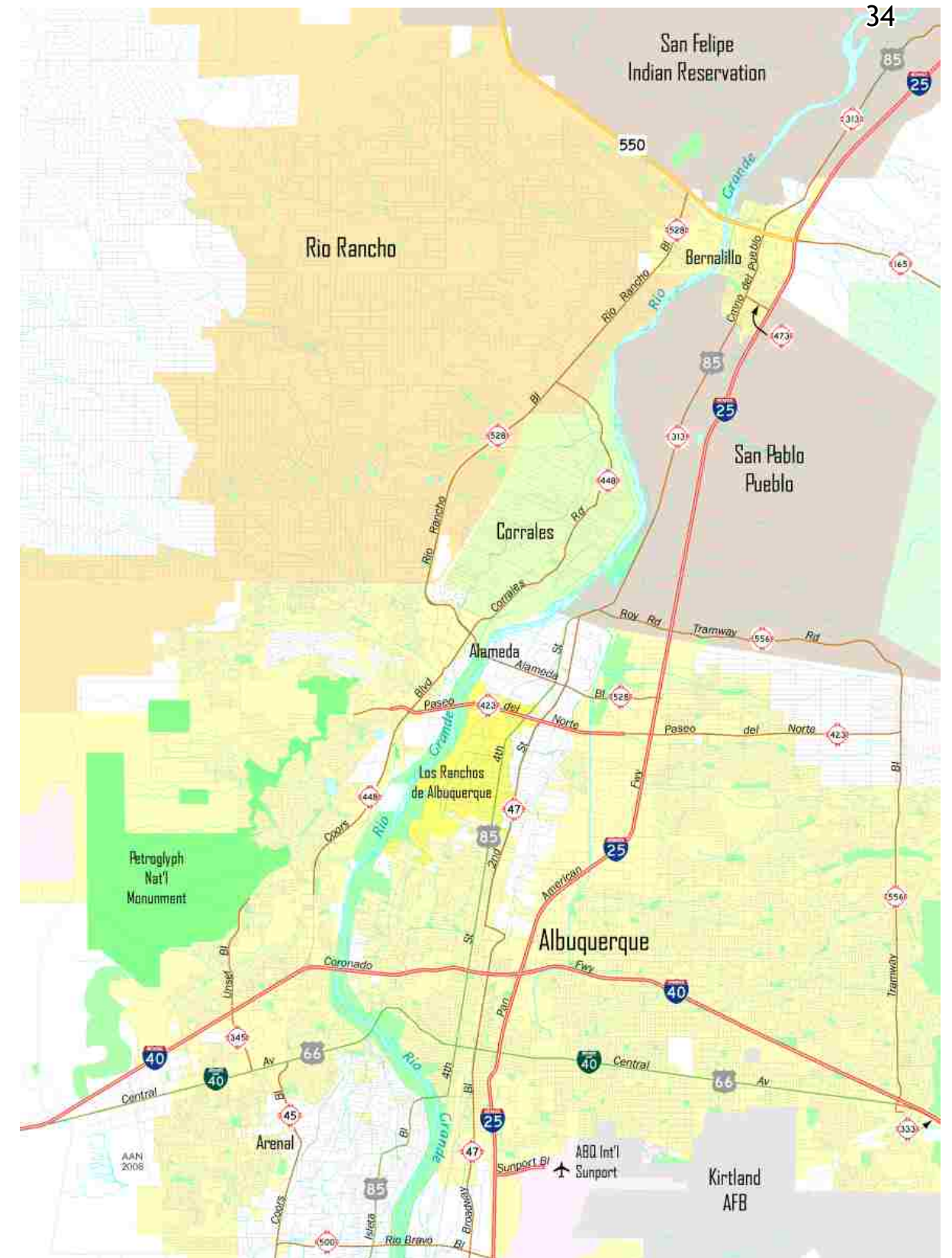
The nature of each city must also be assessed in the context of its historical and structural character. Albuquerque serves as a fascinating specimen of the meaning of local identity. Modern Albuquerque is an eclectic midden, filled with the corpses of national fads and urban solutions, as well as with the remains of a turbulent and eccentric local history. Its sense of place, however, has a tenacious presence despite the ravages of rapid growth.

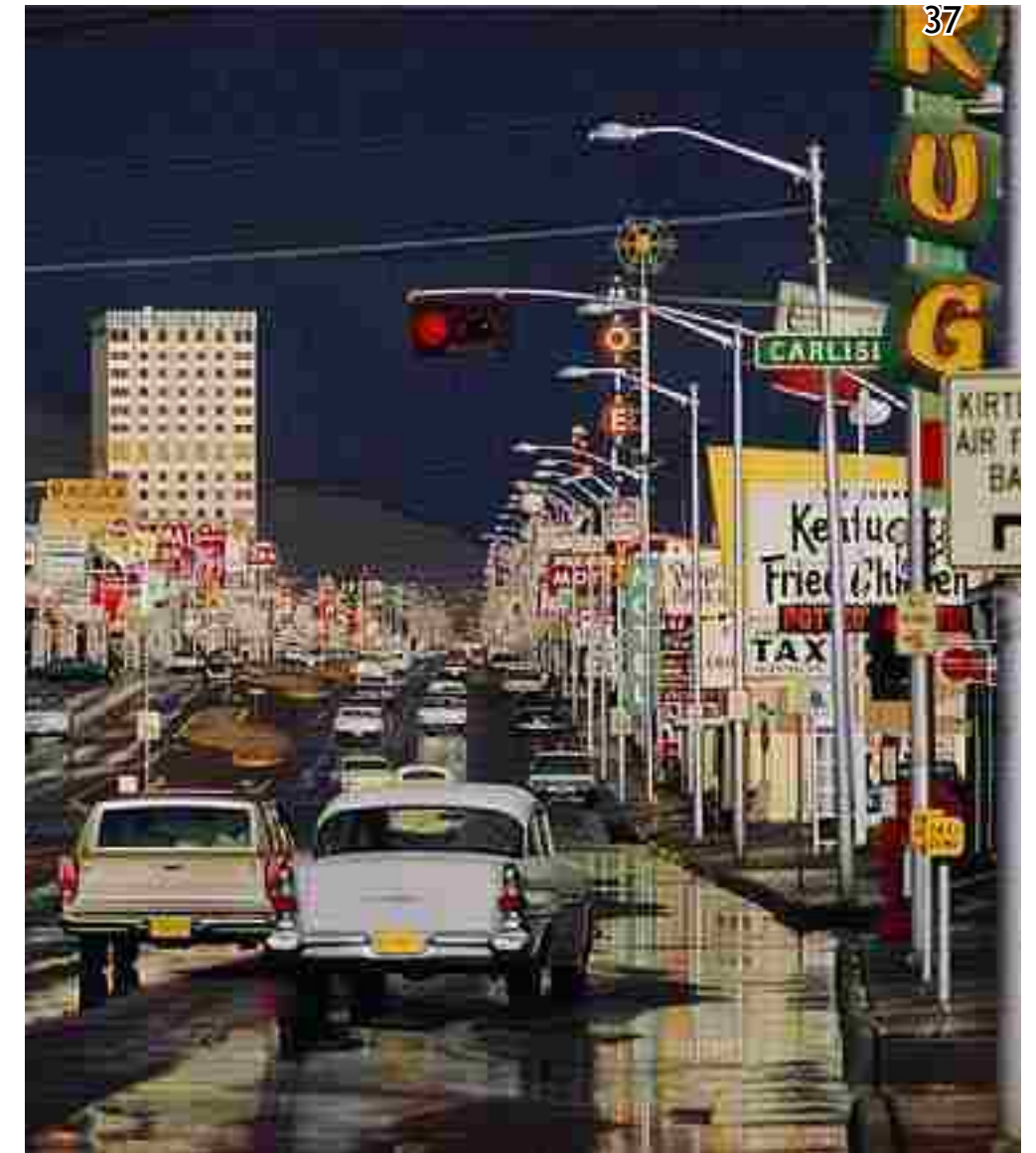
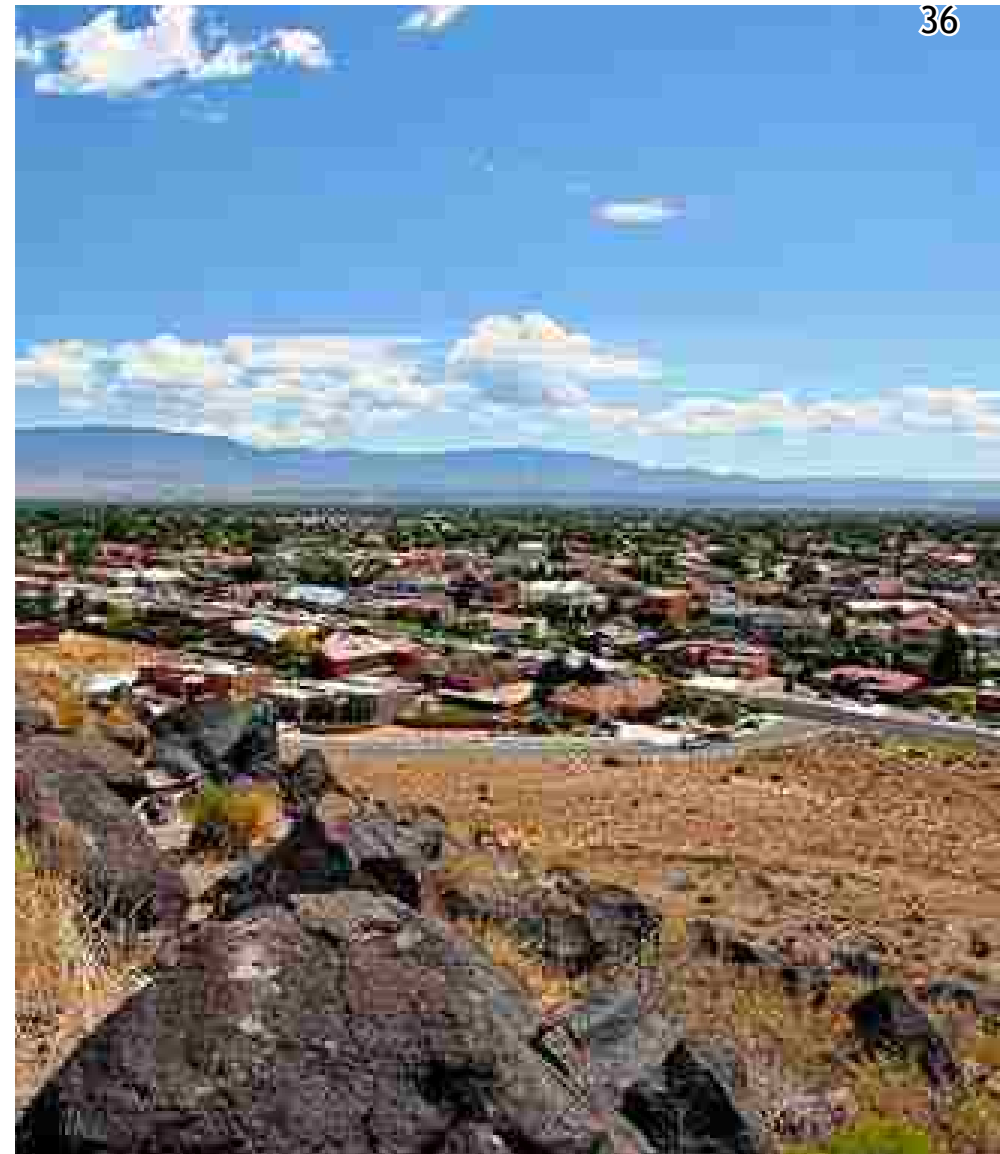
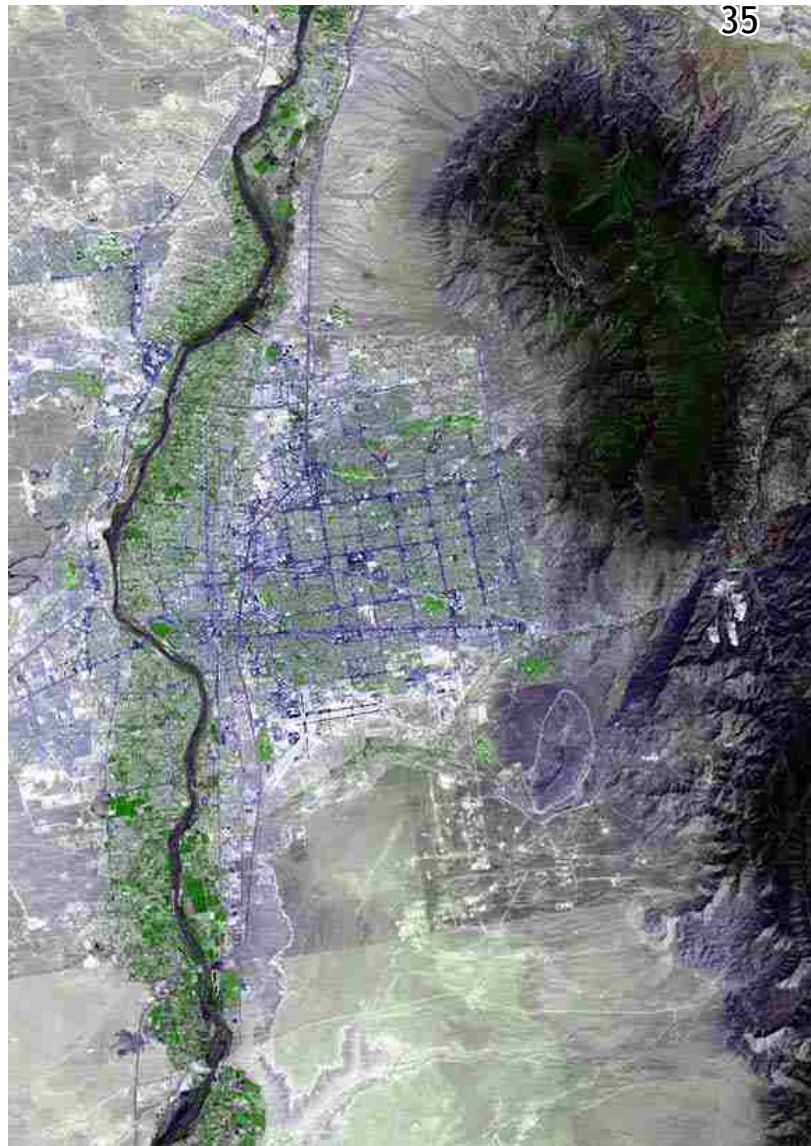
-V.B. Price (Price, 5.)



VB Price calls Albuquerque “the city at the end of the world.” In its current form, Albuquerque is a sprawling mid-sized regional urban hub, providing an economic and commercial center to the state of New Mexico. The City of Albuquerque itself has a population of over 550,000, with increasing growth in unincorporated Bernalillo County and surrounding reservation lands yielding over 887,000 people in the greater metropolitan area. The city stretches over 181.3 square miles despite having natural barriers to expansion in the form of the Sandia Mountains to the East, a State park to the West, and Kirtland Air Force Base to the South. Albuquerque itself bears witness to decades of planning strategies and economic schemes that attempted to transform Albuquerque into a car-centric clone of Los Angeles. Cheap oil, the product of neighboring Texas, provided a ready-made solution to the distance and expanse of the desert.

Beginning in the 1930's, Albuquerque city planners allowed for opportunistic entrepreneurs to reinterpret the landscape in ways that suited the particular economic endeavor, instead of preserving historical districts and regions (Wilson). As a result, the many early examples of Pueblo revival style structures were demolished to make way for new opportunities. The following years saw New Mexico's national importance grow, as significant military research and testing facilities opened at Los Alamos and White Sands. New building projects sought to retain the new residents, many of them highly educated and familiar with suburban amenities in other states. This laissez-faire approach to zoning allowed for a series of sprawling suburban-style developments to take root, as well as shopping malls and supermarkets. Soon strip malls and expanded automobile corridors permanently altered Albuquerque into a mass of gridded asphalt and low-rise sprawl. The old centers and neighborhoods within the city are awash in drive-thru burger joints, six lane arterials, and every modern convenience housed in kitschy roadside sheds, all selling the same products and services available to the other 49 states in the Union. The expansion of the Interstate Highway system in the late 1960's shifted what little gravitas was left of the downtown core to the overwhelming power of the car. The regional legacy of the Postwar years became one of disconnection, decentralization, and mobility. The loose zoning regulations, shifting economic agendas, and a rapid conversion of surrounding agricultural land into housing developments have essentially nullified many of the city's attempts at civic togetherness. Subsequent urban planning strategies since the 1970's have attempted to densify Downtown Albuquerque, the University District, as well as several other neighborhood clusters, often to lower expectations.

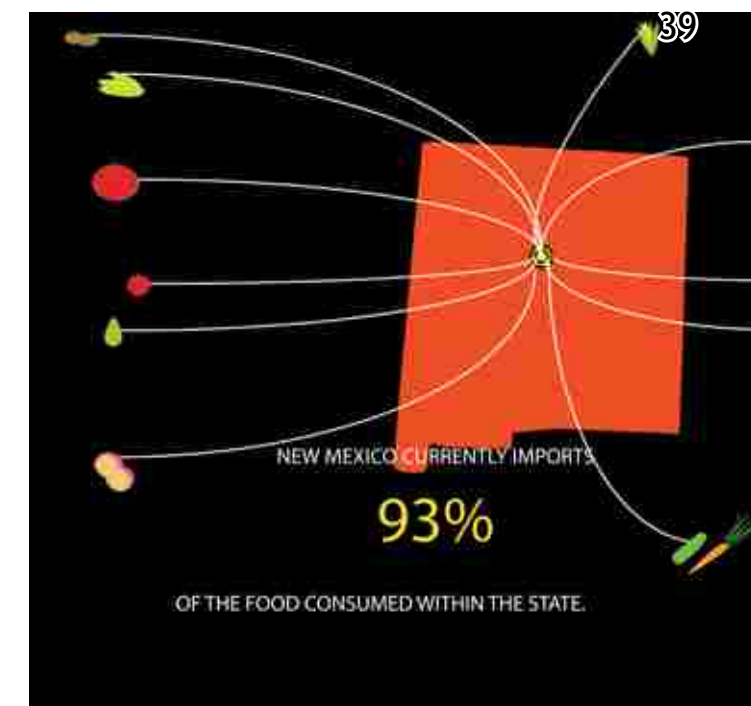
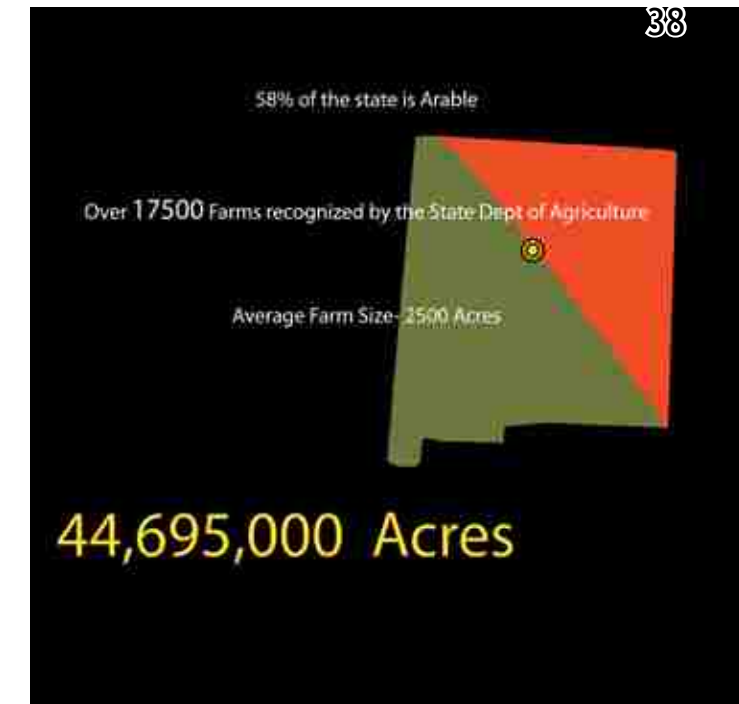




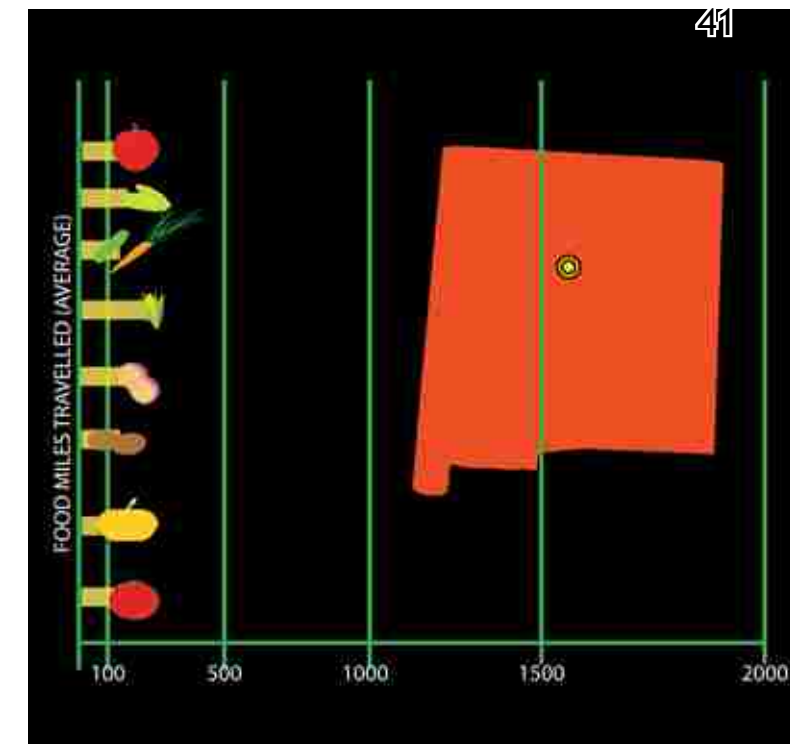
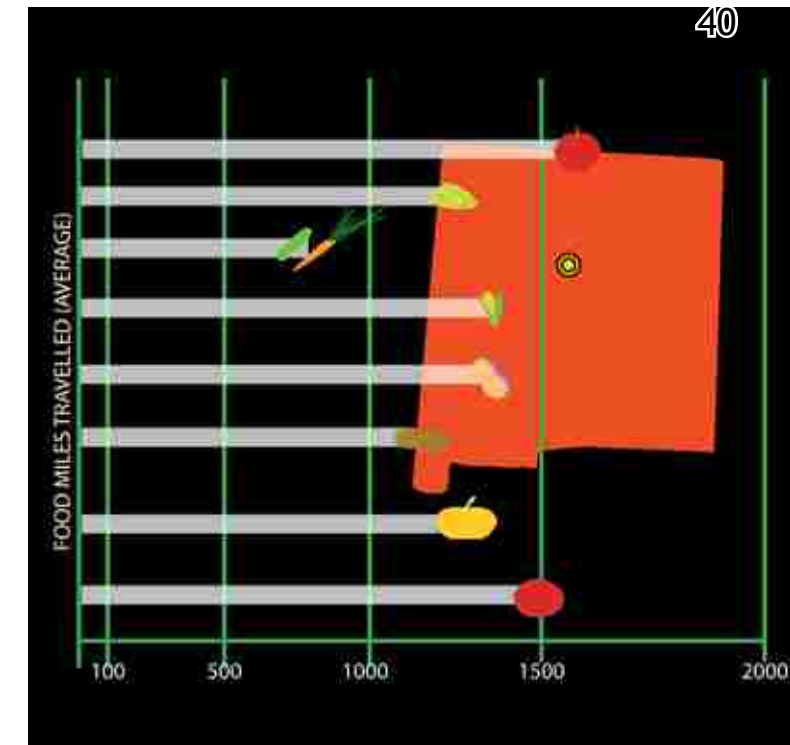
Although New Mexico has had a rich agricultural past stretching back into the Pre-Columbian History of North America, it is currently at a turning point. The major losses in much of the suburban expansion were Albuquerque's small to mid size farms. The Rio Grande Basin and flood plane had historically been a rich, albeit narrow, stretch of fertile land. Land developers quickly transformed many small farms and ranches into housing developments, particularly due to the accessibility to highways. Due to a series of economic and regional water issues, farmers are frequently priced out of farming. The city is petroleum dependent, loosely zoned, and incapable of sustaining itself through means other than importing. As goes Albuquerque, so goes the state.

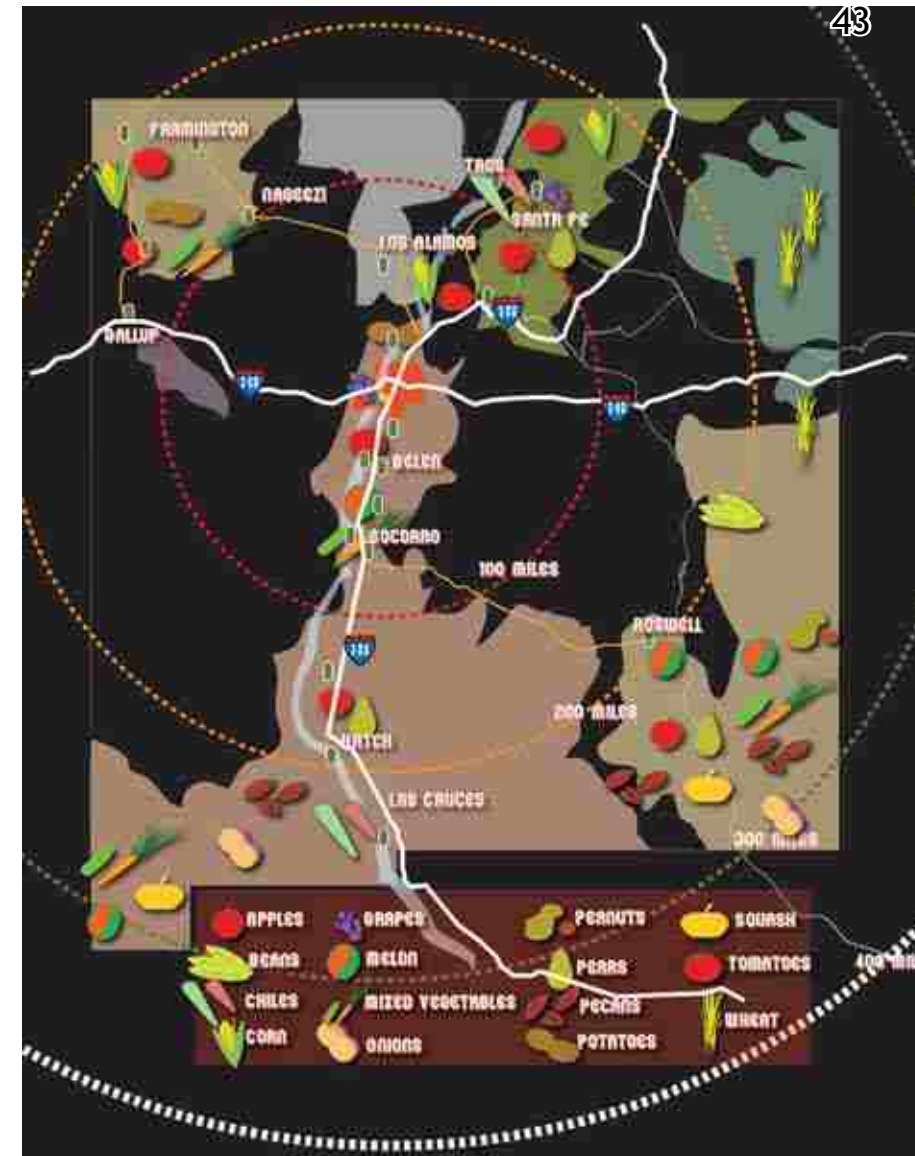
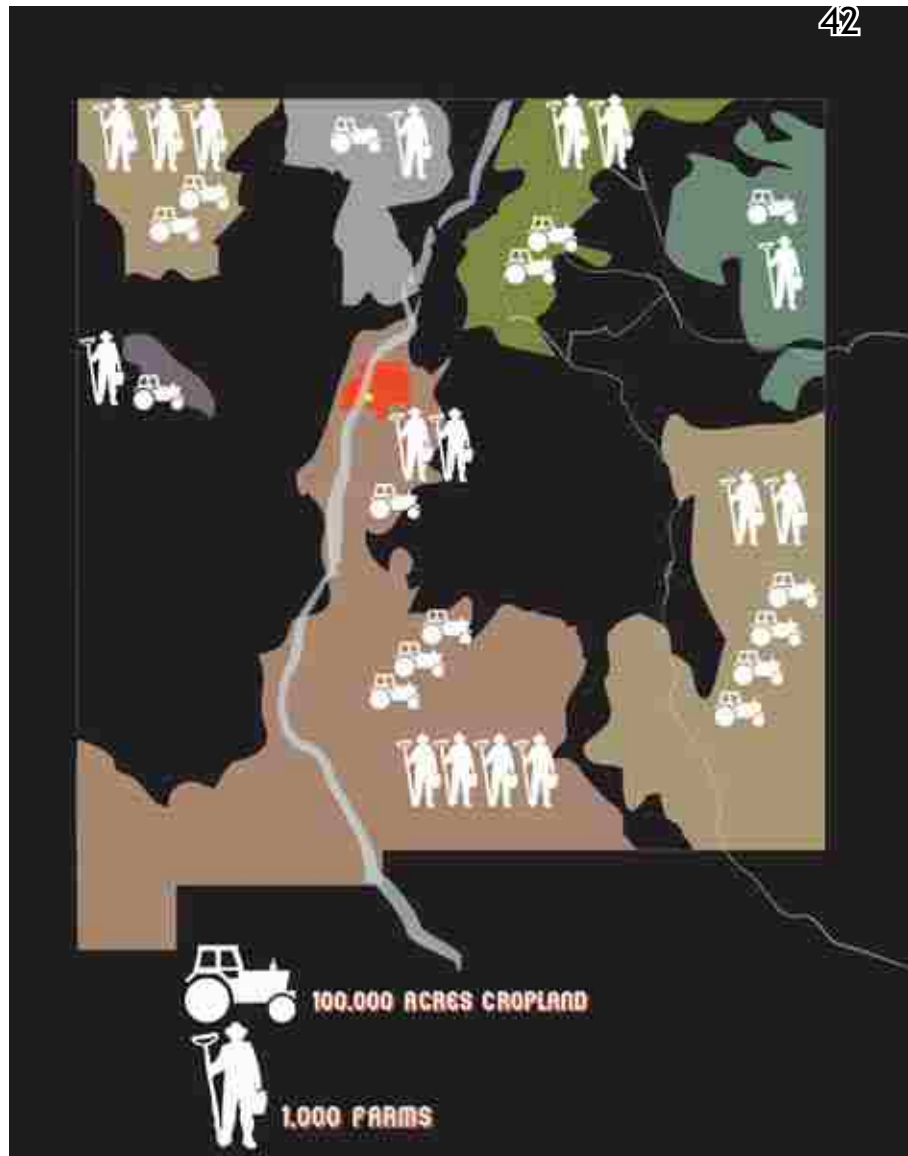
The irony is that New Mexico is rich in agricultural land, although it is currently oriented almost entirely to export cash crops like pecans and alfalfa.

As a result, According to the New Mexico state department of Agriculture, New Mexico currently imports over 93% of the food it currently consumes. Fruits and vegetables typically travel into the state through private grocery distribution carriers from out of state or out of country. The average supermarket onion, squash, or apple travels over 1500 miles to rest on a grocery display, even during harvest seasons. Regional farms, which are capable of growing the very same fruits and vegetables, are often priced out of participating in the local economy. This is largely due to the fact that small and medium farms have trouble becoming clients of large-scale grocery distributors, and if they are to continue farming they face an uphill battle of marketing and distributing their wares themselves. New Mexico has multiple productive agricultural regions, and although many of them are currently oriented to producing export cash crops like alfalfa and yearling cattle, they could easily be reverted to producing food. Likewise, the La Montanita Foodshed, roughly the Rio Grande Basin running from Santa Fe to Socorro, could potentially be a virtual cornucopia of agricultural products, and could provide opportunities for small and medium scale farmers to enter the Albuquerque market. Farmer's markets do exist, and although there are several food coops within the La Montanita Foodshed that cater to farmers within this demographic, there still isn't enough of a groundswell of regional support to bring a significant amount of stability.



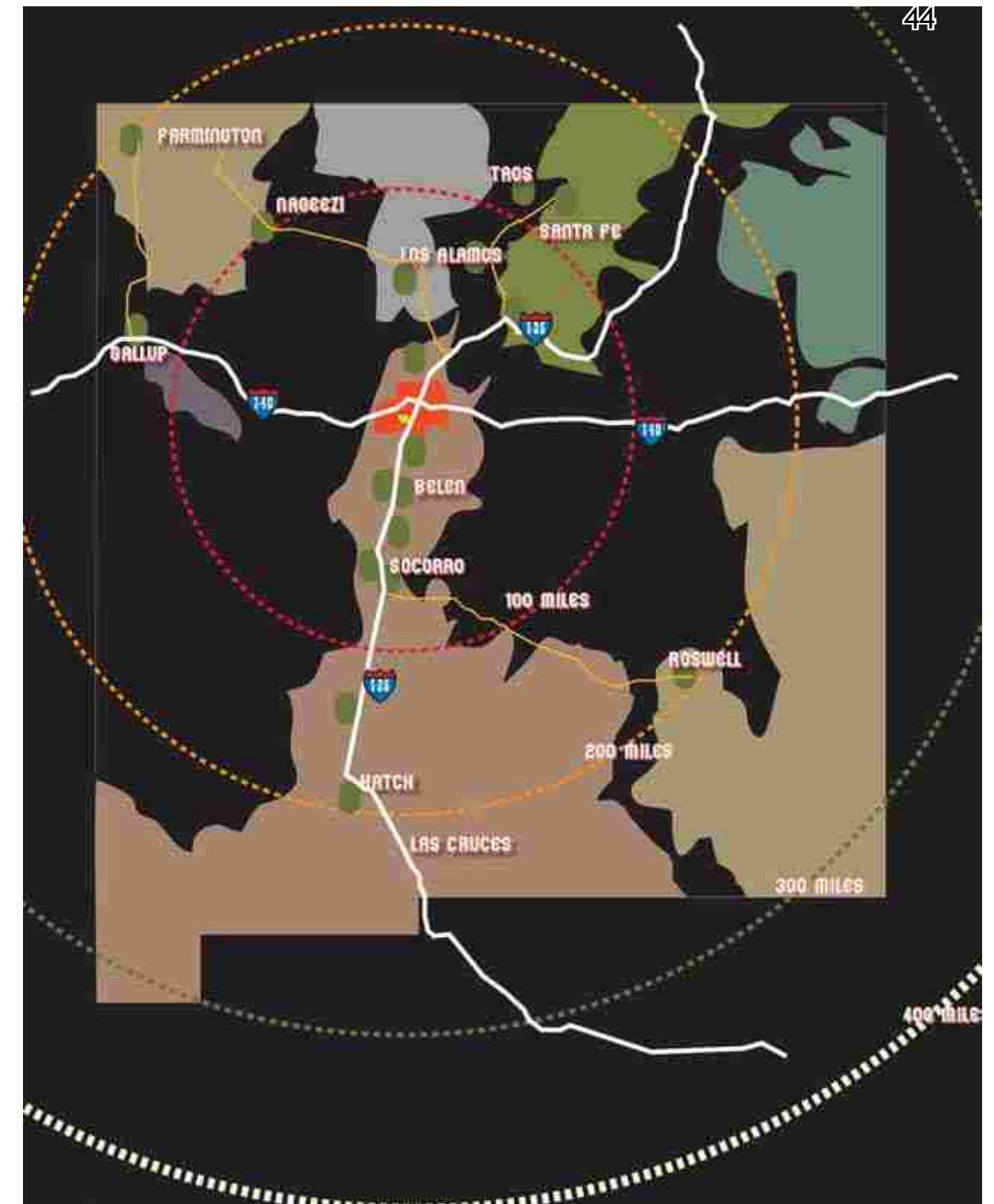
Additionally, the farming must be economically viable for farmers to continue farming. Agricultural statistics, gathered from the USDA's AgCensus of 2007, show mixed messages relating to the sustainability of small and medium sized farms. New Mexico lost around 3 million farm and ranch acres in one decade (1997-2007), largely due to poor economic conditions and conversion to low-density development. The American Farmland Trust classifies an additional 2.6 Million acres of farmland as being at risk of conversion to suburban development (USDA). Providing regional food security requires keeping farm and ranch land vital, yet the arable acreage is rapidly declining. The decline is due in part to a low societal value for the asset of farmland and an increase in subdivision style development. Dwindling numbers of new and existing growers is also contributing to the problem, and the existing and continuing farmers have difficulty finding relevance and market share in both the state and export markets. External pressure from Texas and Mexico have pinched the available water rights on the Rio Grande and Pecos rivers. Water spectators and cities are willing to pay to purchase water rights that, ultimately, will be allotted for non-agricultural uses outside of the state. Often water is leased back to a resident farmer, but increased demand for water from outside of the state means more water is legally restricted from staying and irrigating New Mexican farms and ranches.

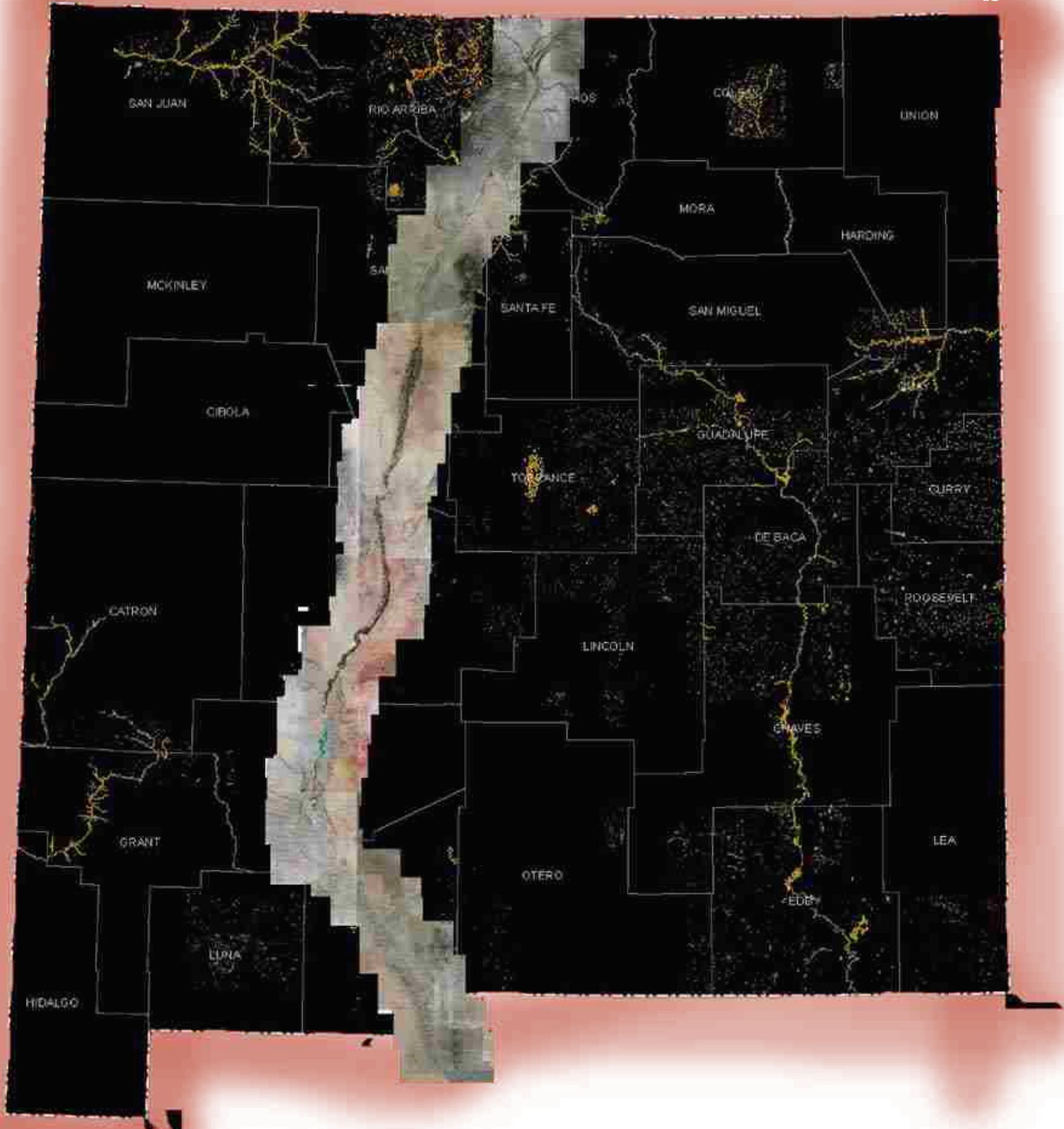




The longevity of New Mexico's foodsheds and food production capabilities depends on the existence of adequate arable farmland and ranchlands. Without additional economic incentives to continue regional farming, farmers are more likely to sell both land and water rights. The New Mexico based advocacy group, Dreaming New Mexico, as well as several state lawmakers and departments are trying to advance New Mexico's self reliance. By 2030, they would like to improve the level of resilient farmland designated for in-state consumption from 7% to 32%. This would include an increase in the number of small farms and farmers.

The resilient nature of the desert and New Mexican culture provide an additional layer of resilience, with the remoteness and physical demands of the Chihuahuan desert creating a feedback loop of tough communal survival. The humble adobe house, a home literally formed from the dirt on site, provides a metaphor for New Mexican identity and longevity. Food security and food production are important touchstones in the move to shore up local economies. This is a celebration and rediscovery of ages-old traditions of farming and cuisine that dominated the Rio Grande basin. It may also establish a new precedent to reknitting the fragmented urban fabric of Albuquerque and other similarly disjointed, automobile dependent cities within the United States. The food of New Mexico embodies the essence of what it means to be New Mexican. New Mexican cuisine is a true fusion of its climactic capabilities, historical participants, and a population settled over time. Traditionally farmed staples like beans, corn, and squash (known as tres hermanas or the three sisters) provided a backbone of traditional meals, while Spanish, Mexican, and American culinary methods have since added to the kitchen and agricultural lexicon. New Mexican cuisine helps to define what it is to be New Mexican, and the traditional relationships between regional farmers and non-farmers were deeply connected by this culinary heritage. Currently, there are a multitude of small pathways into the food system. However, if the Dreaming New Mexico predictions come true, a more robust solution beyond farmers markets and occasional CSA drops are needed to harness new farm products. A more regionally or civically focused distribution and purchasing model could be put in place.





ALBUQUERQUE: CITY AT THE EDGE OF THE WORLD

Photo Credits

- 33- Image courtesy of <http://www.city-data.com/forum/city-vs-city/596868-city-skylines-before-after-7.html>
- 34- Map of Albuquerque and surrounding area (courtesy of AAA)
- 35- Satellite image of Albuquerque and the Rio Grande River basin.
- 36- Suburban encroachment on farmland, (image courtesy of 33- Image courtesy of <http://www.city-data.com/forum/city-vs-city/596868-city-skylines-before-after-7.html>)
- 37- Photograph by Ernst Haas. (courtesy of the Ernst Haas estate)
38. Data from USDA
- 39 Data from USDA
- 40- Data from USDA- mileage chart of typical produce food miles in the USA.
- 41- Comparative data with regionally grown New Mexican Agricultural products. Data from Dreaming New Mexico
- 42- Potential expanded farmland, adapted from Dreaming New Mexico Projections
- 43- Productive regions and associated crops, adapted from Dreaming New Mexico findings.
- 44- Potential productive regions that could interface with a central market system, 100,200,300,400 miles
- 45- Rio Grande River Basin Satellite image.

CENTRAL MARKET DESIGN PROPOSAL

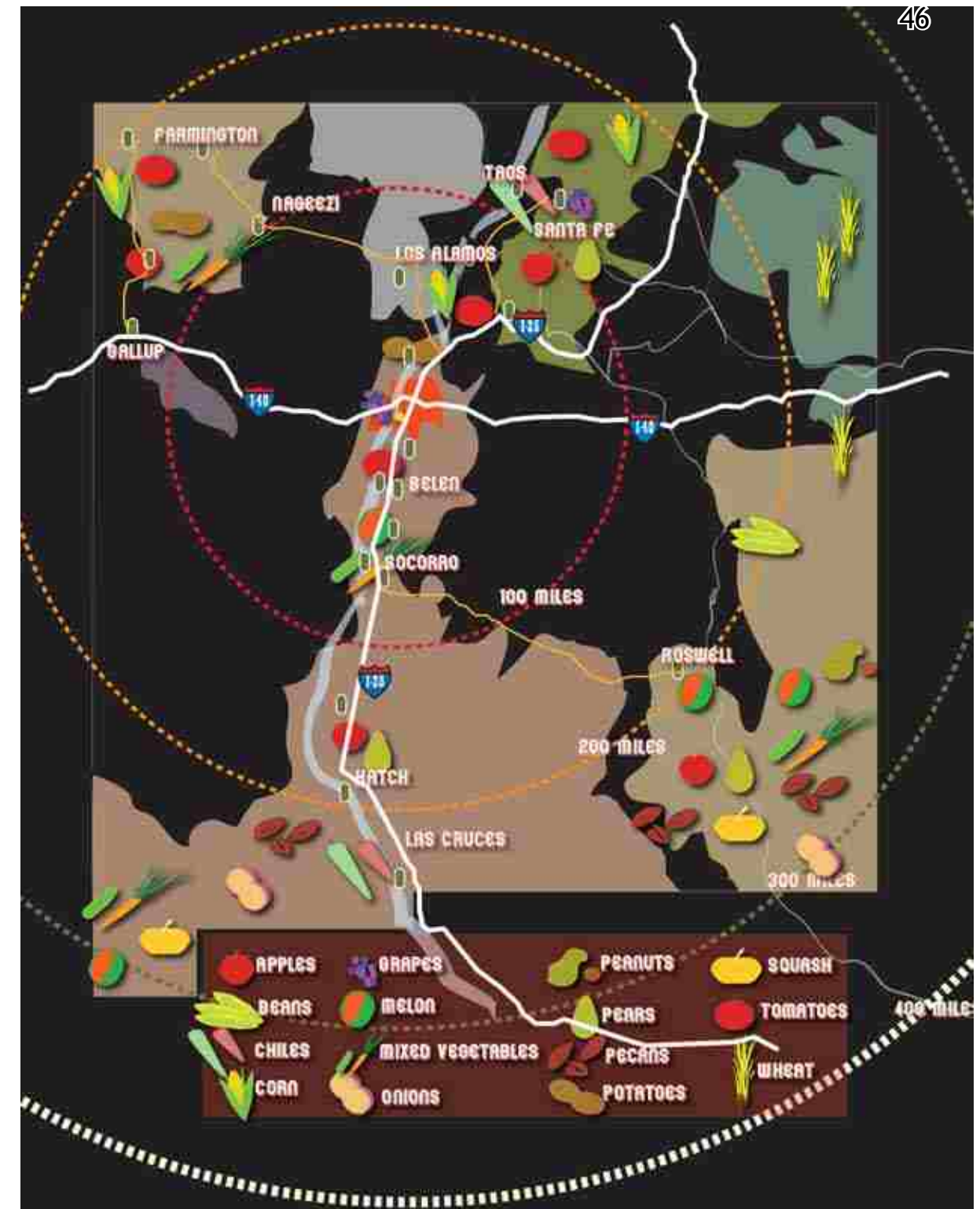
The public market system has been identified as a possible antidote to the serious breakdown in contemporary food systems. The dangerous consequences of global food marketing and distribution, evident in numerous recalls, hygiene scandals, and the threat of global pandemics, give credence to the benefits of local and regional markets. Since the public market tradition has privileged direct marketing for centuries, it holds promise for sustaining agriculture, biodiversity, and healthy relationships among urban and rural populations, economies, and production.

-Helen Tangires (Tangires, 35)

In this thesis I propose the construction of a central market terminal to serve as a gathering point for regional produce grown and collected from the La Montanita food shed. The market would have a strong connection to both the rural agricultural towns surrounding Albuquerque, as well as to the food culture and consumer within the city. The storage and regional transportation of goods to the terminal would be facilitated by a series of satellite locations, each located about 50-100 miles away from the central site. The satellite sites would serve as primary regional collection points for small to mid size farms. Food could then be inspected, stored, and prepared for transportation to the central hub. The central market would primarily be a point of sale facility, focusing on efficient handling and transfer of goods to the market floor, followed by the sale and transfer of products to wholesale or private purchase.

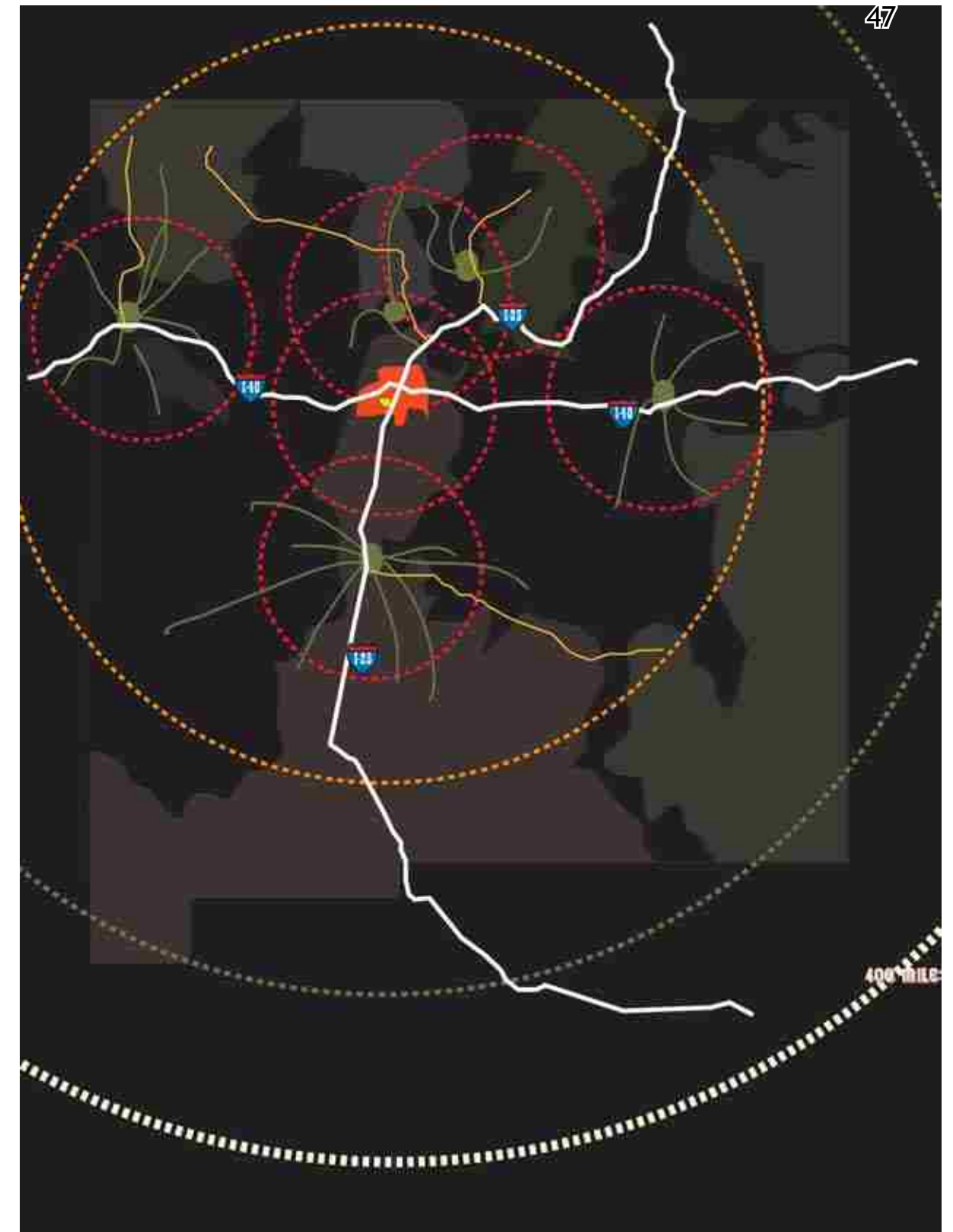
The central market model could make a significant contribution to the regional agricultural economy of Albuquerque. The market would act as an economic leveler in terms of distribution and market competition, allowing small and midsize farms to directly compete against imported agricultural products. As an “arm’s length” state governmental organization operating on the synchronization of regional crops and sales, it would provide small and medium sized producers with an opportunity to meet growing demand by consolidating independent efforts into a singular source of sale, essentially allowing farmers to farm by offering a marketing and distribution method. Wholesale purchasers would also benefit from the regional bounty without relying on their own storage or handling capacity or by turning to larger, out of state grocery and produce distributors. As this project is seen as partially state-funded, tax incentives and land grant monies could potentially be a part of the overall economic structure.

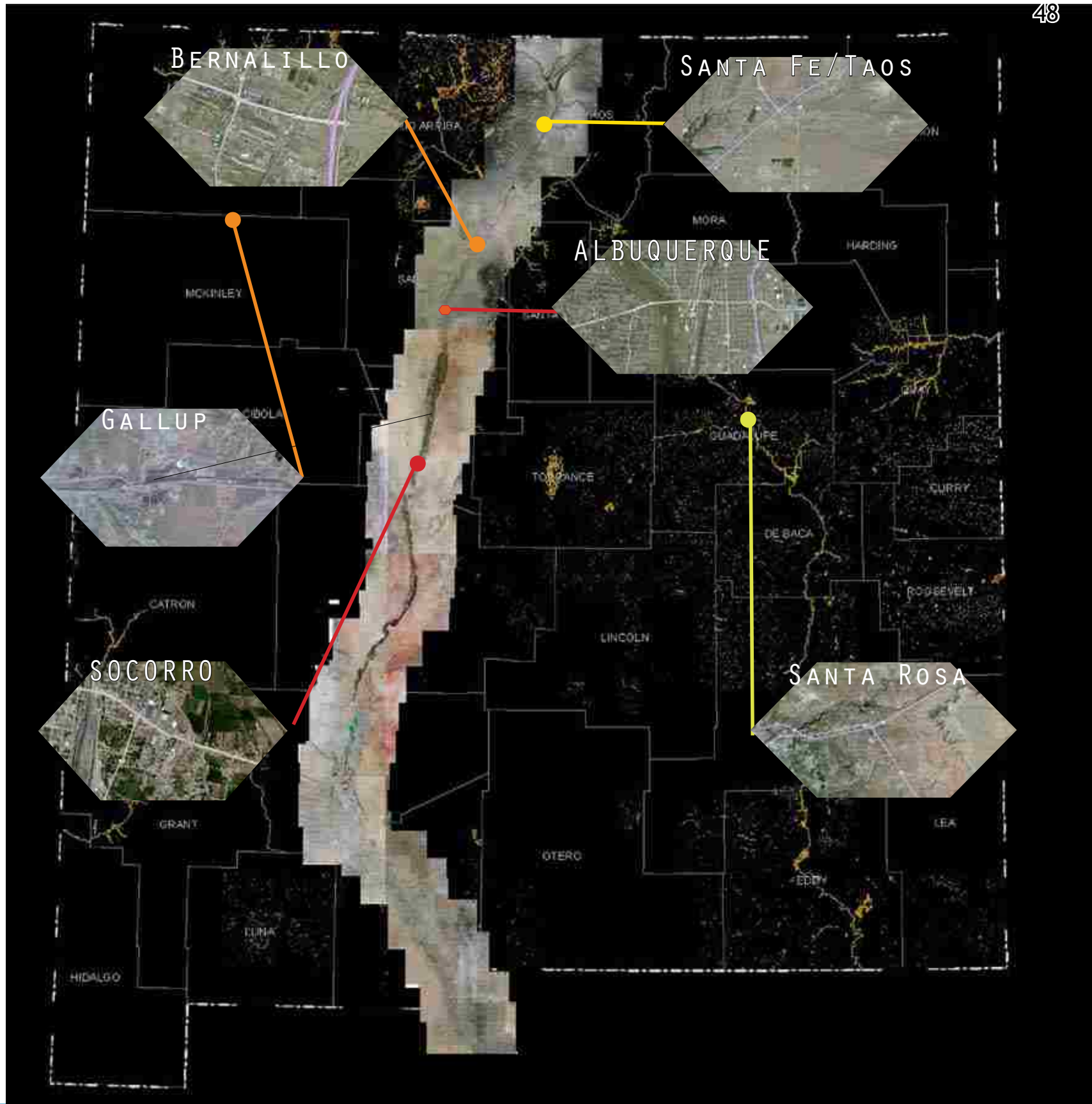
The central market model could be adapted for contemporary regional food needs. Although it was conceived in the mind-nineteenth century with the maturation of rail transportation, it has the potential to serve as a template for regionally grown and transported foods reliant on highway connections. The market originally provided a space for the large quantities of perishable food items to be offloaded from train cars and sold to wholesale vendors. A similar arrangement could be sought between regional trucking companies and in-city vendors and distributors.



Product prices and quality of goods could be better managed and regulated by bringing all goods to a single point of control. Finally, retailers and consumers would benefit from the consolidated volume and overlap of resources. The central market was primarily designed to be a large retail and wholesale market under a single roof or a series of roofs. It was typically centrally located near the greatest confluence of consumers, businesses, and transportation routes. The central market was typically a phenomena of large cities. Often the central market was one of several public market spaces that were networked together, with the central market serving as the chief regulator and primary transportation terminal.

A network of purchasers, combined with a network of Distributors, could potentially provide the means for regional farmers to have access to larger-scale markets. To begin, I looked at Albuquerque as a central terminal, but also looked to the surrounding cities as critical links in the system. The smaller satellite hubs would serve as local gathering warehouses that could then coordinate with the central terminal. The hub sites would be located in towns ranging between 50 and 100 miles from the central market site in Albuquerque. These sites would be collection and storage sites, focusing primarily on farm relationships with regional farmers. These sites would provide a critical link by receiving, sorting, and storing produce that would then be sent to the central market for wholesale.





The Market Floor.

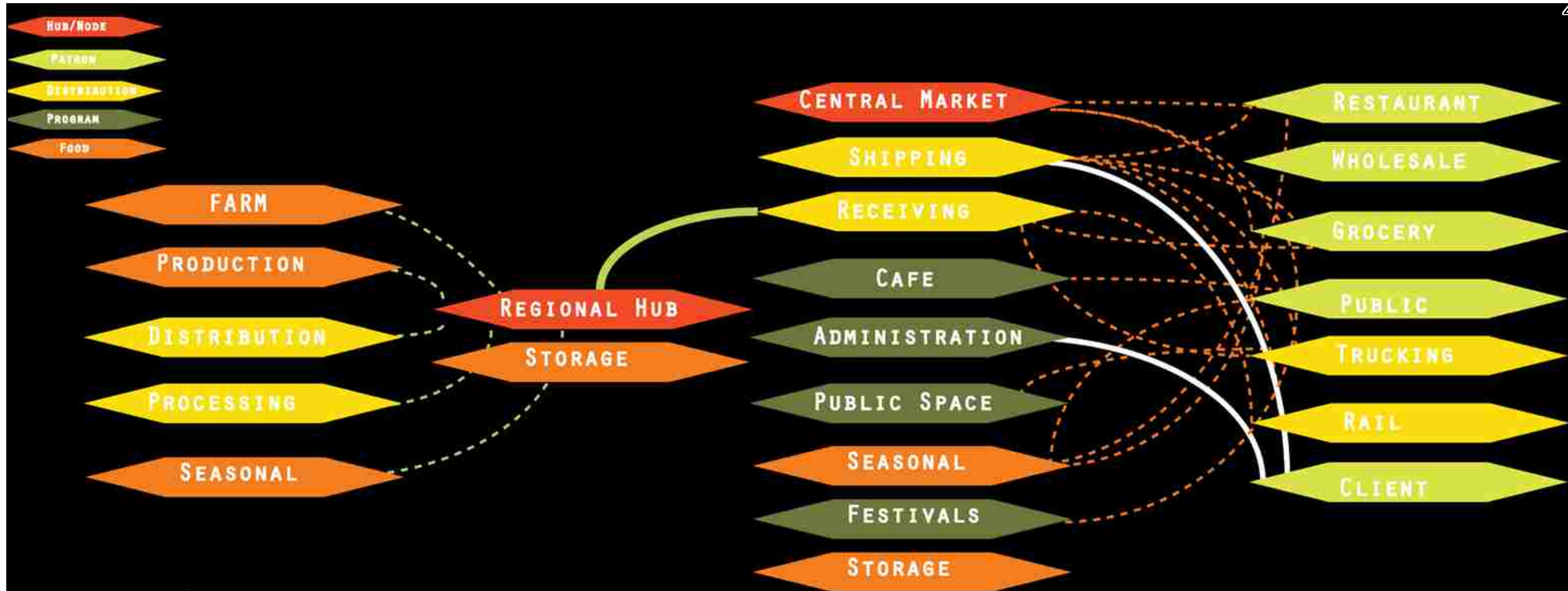
The Market floor would exist as a series of longitudinal “fingers” extending east-west, perpendicular to the north-south axis of the loading docks. These “fingers” would provide a series of modular storage configurations, ranging from small unrefrigerated market stalls to refrigerated walk-in type refrigeration units. The typical layout of one stall would be 10’x20’, which would allow for approximately NNN number of floor stalls. Customers, both wholesale buyers and general public visitors, would be allowed to peruse and purchase directly from these stalls.

Mezzanine floor-

Additional Retail space is provided above the market floor. These could be seasonal, non-perishable goods or small prepared-food kiosks.

Administrative Offices-

Primary offices for market staff and on-site purchasing offices for regional grocery or institutional buyers.



CENTRAL MARKET PROGRAM

LOADING DOCK, 10 BAYS 5000SF
 STORAGE/HANDLING- 8000SF
 MARKET FLOOR- PRODUCE STALLS- 15500SF
 MARKET FLOOR- OTHER 5300SF
 CATWALK-EXPANDED RETAIL- 9000SF
 ADMINISTRATION (3RD FLOOR)- 9900SF
 MECHANICAL/HVAC 10300SF
 CAFE- 400SF
 OUTDOOR MULTIUSE SPACE

REGIONAL HUB

LOADING DOCK, 10 BAYS- 5000SF
 STORAGE/HANDLING- VARIES
 ADMINISTRATION 500SF
 MECHANICAL/HVAC 500

The success of the central market terminal depends heavily on a number of factors. Since connectivity to the greater Rio Grande Basin is necessary for primary vehicle distribution, the primary central market site must have easy access to major arterials and highways. Ideally, the site would also potentially have direct or easy access to rail terminals as well, as there exists a possibility of rail expansion. The primary site should also add value to an existing cluster of activity. Albuquerque master plans have struggled over the past three decades to provide areas of concentrated urban activity; the site should capitalize on an existing, established neighborhood draw, one that it could potentially have synchronized activity and program with the potential of shared resources. Shared resources could include parking, transit stops, shared outdoor activities, and common public interest. Ideally, the site chosen would be zoned for light industrial activity. After studying the city, the Neighborhood of Barelás topped my list of potential sites.

CENTRAL MARKET PROPOSAL

Photo Credits

46- Productive regions and associated crops, adapted from Dreaming New Mexico findings.

47- The Network diagram- regional hubs to connect.

48- Town sites surrounding Albuquerque- each town houses a small collection and distribution warehouse that will interface with the central market, seeking to have a 72 hour turnaround on agricultural products

49. Program Diagram- graphic illustration

BARELAS NEIGHBORHOOD, ALBUQUERQUE, NEW MEXICO

Barelas is a recognized neighborhood within the city of Albuquerque, New Mexico. It consists of the triangular area bounded by Coal Avenue to the North, the BNSF railroad tracks to the East, and the Rio Grande River to the West and South. The area claimed by the Barelas Neighborhood Association extends all the way south to Woodward Road, though south of Bridge Boulevard/Avenida Cesar Chavez is primarily industrial rather than residential. Geographically speaking, Barelas is somewhat isolated, with the railyard and river separating it from adjacent areas of Albuquerque to the east and west.

Barelas was originally a separate village distinct from Albuquerque until it was absorbed during the railroad-fueled growth of the 1880s. When Don Francisco Cuervo y Valdez established the township of Albuquerque in 1706, two of the twelve settlement family heads were Juan and Cristobal Varela. The settlement was formally established in 1662, predating even Old Town, the oldest recognized neighborhood in Albuquerque. Barelas in the late 1800s was a quiet agricultural community, with 309 residents listed in the 1870 Census and 350 in 1880. The village did see minor action during the Civil War (1861-65) most notably during the Battle of Albuquerque in April 1862. Union troops bivouacked in Barelas exchanged long-range artillery fire with a contingent of Texas-based Confederate soldiers east of Albuquerque for several hours with no casualties.

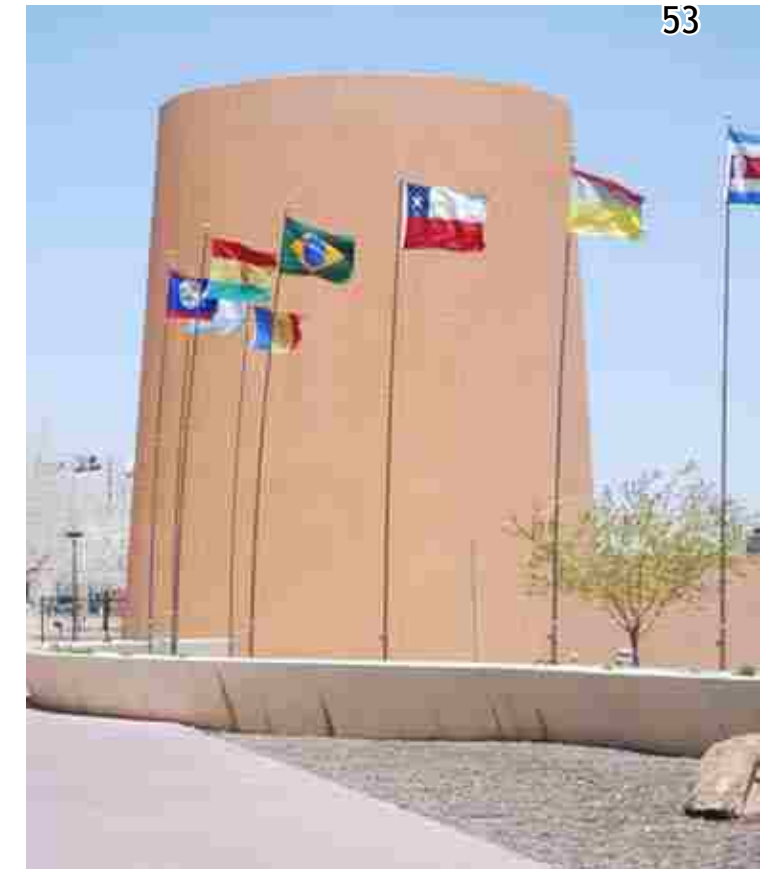


The Atchison, Topeka, and Santa Fe Railway reached Albuquerque in 1880. However, In order to keep the route as straight as possible the railroad planners chose to build the Albuquerque depot and support structures 1.5 miles east of Old Town. This led to the immediate creation of a separate “New Town” adjacent to the depot and directly north of Barelmas. Even though the train tracks bisected the traditional agricultural fields of Barelmas, new construction fueled by the rail associated infrastructure and the Santa Fe Railway Shops provided long term jobs and new economic viability to the region. By 1900 there were over 1,200 residents, many of whom worked for the railroad. Most of Barelmas was incorporated into the City of Albuquerque in 1891, marking its end as a separate community. Barelmas saw continued prosperity after 4th Street was designated as part of US Route 66 in 1926. The road was soon lined with filling stations, garages, and cafes catering to the steady stream of travelers passing through Barelmas; 4th Street was added to the national registry of historic byways in 1997.

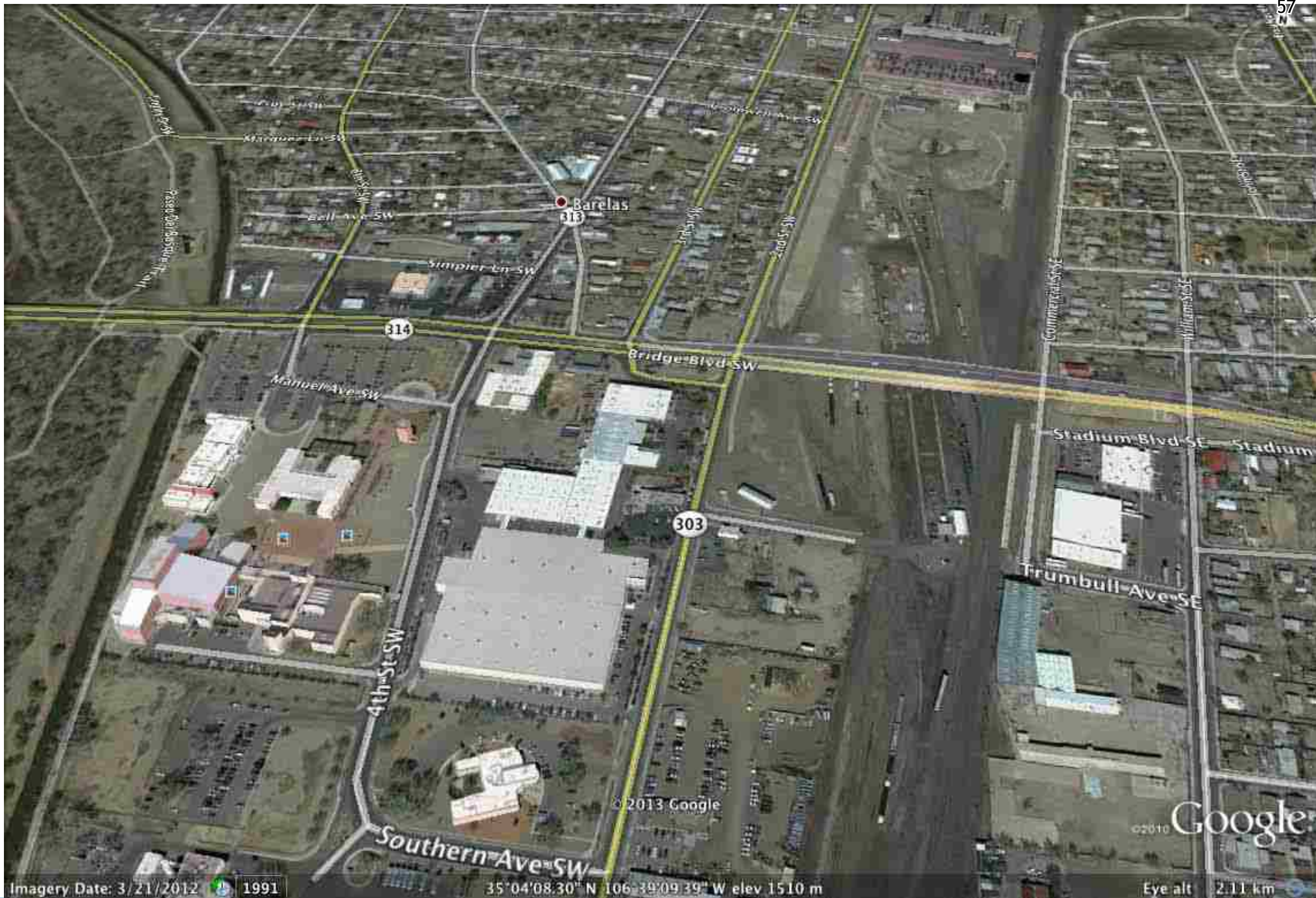
Barelmas suffered a series of economic setbacks in the mid-20th century, the first of which was the realignment of Route 66 in 1937. The new East-West route rerouted the highway from 4th Street to Central Avenue, effectively bypassing Barelmas entirely. Traffic on 4th eroded further once Interstate 25 became the dominant north-south arterial, supplanting US 85. The railroad shops closed in 1970, causing the elimination of some 1,500 jobs in Barelmas. Then in 1974 , a downtown section of 4th Street was closed to build a civic plaza in an attempt to generate community space in Downtown Albuquerque. The construction of the plaza reduced the effectiveness of 4th Street as a major arterial, further isolating Barelmas from the rest of the city. Barelmas has experienced a minor resurgence since the late 1980s. Demand for

housing near Downtown has increased, causing a minor boom in multifamily construction along several corridors North of Avenida Cesar Chavez. The opening of the National Hispanic Cultural Center in the early 2000's brought visitors and capital back into the neighborhood. The National Hispanic Cultural Center (NHCC) is dedicated to the study, advancement, and presentation of Hispanic culture, arts, and humanities. The facility houses an art museum, performance theater, community classrooms, and permanent exhibits. The NHCC has staged over 20 art exhibitions and 400 programs in the visual, performing, and literary arts featuring local, national, and international contributors.

Currently, Barelmas has around 3,700 inhabitants, roughly two thirds of whom are Hispanic. It has historically been one of the poorest neighborhoods in Albuquerque. In 2000, per capita income was \$5,871, with 46.4% of the population below the poverty line and 20.5% of households receiving public assistance. The unemployment rate was 21.9%.

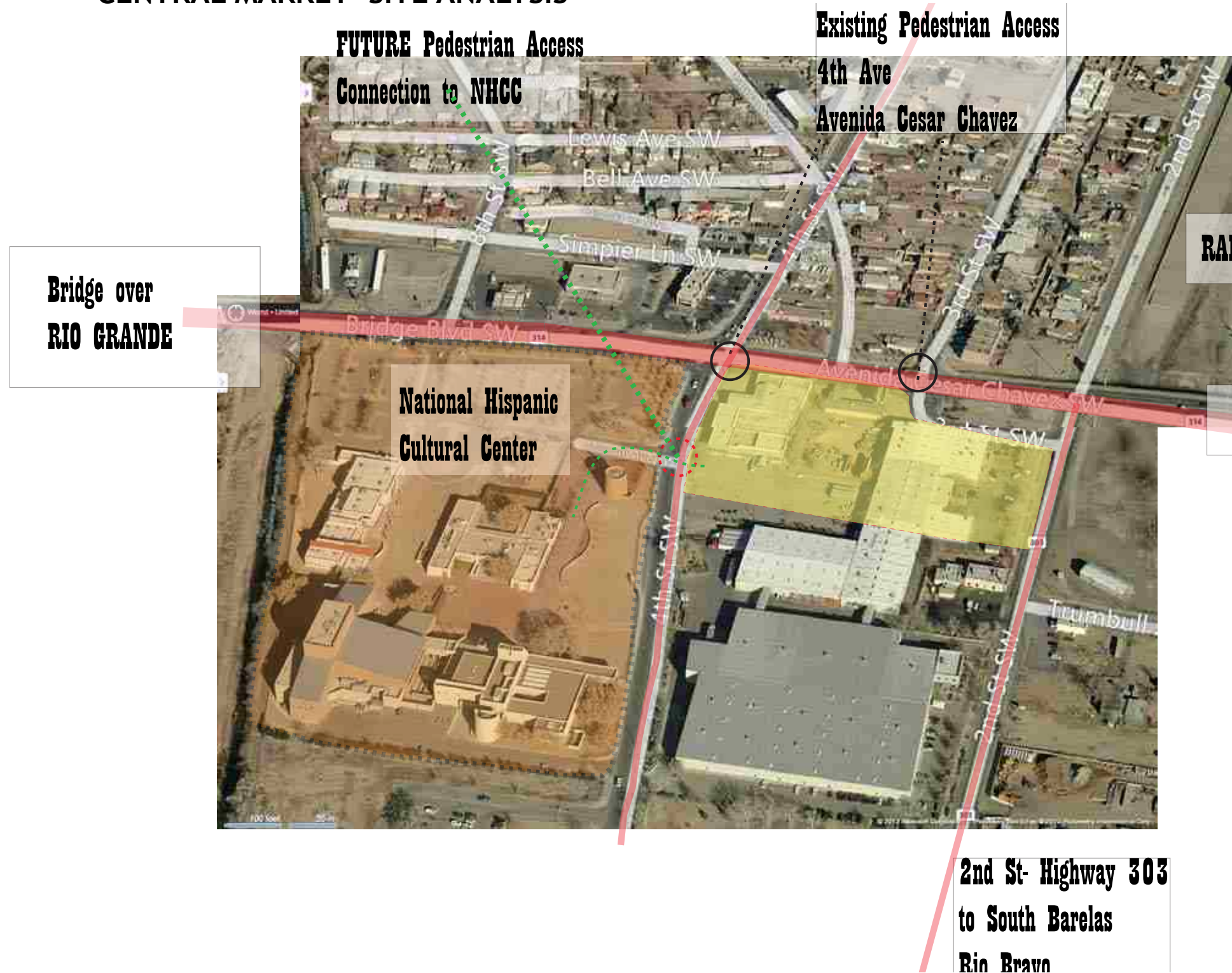






CENTRAL MARKET- SITE ANALYSIS

58



Corner of Avenida Cesar Chavez (ACC). ACC connects to I25 4th Avenue. 4th Avenue is an Arterial connection to Downtown Albuquerque.

2nd Avenue.

Northwest Corner- overpass over railyard property. Small street connecting 2nd Avenue (railroad frontage road) to

3rd Avenue.

Zoning North of ACC- primarily Single Family Residential, Multi Family Residential, Commercial on ACC.

Warehouse/ light industrial south of ACC

Institutional/ Civic West (NHCC)

East -Railroad property

Public transit in Barelvas is provided by ABQRides 53 Isleta and 54 Bridge/Westgate city bus routes, which follow 8th Street and 4th Street respectively. Additional rail and bus connections are available a few blocks north of Barelvas at the Alvarado Transit Center, which includes a transit hub between the city's ABQRides metro service and the RailRunner regional passenger rail.

Bike connections available at the Bosque River Trailhead, Eastbank of the Rio Grande River.

Sidewalks on ACC, and pedestrian crossings at ACC and 4th Ave. and ACC and 2nd Ave.







Central Market Program

Loading Dock, 10 bays- 5000sf

Storage/handling- Varies

Administration 500sf

Mechanical/HVAC 500

Central Market Program

Site- 290,000sf

Loading Dock, 10 bays 5000sf

Storage/handling- 8000sf

Market Floor- Produce Stalls- 15500sf

Market Floor- Other 5300sf

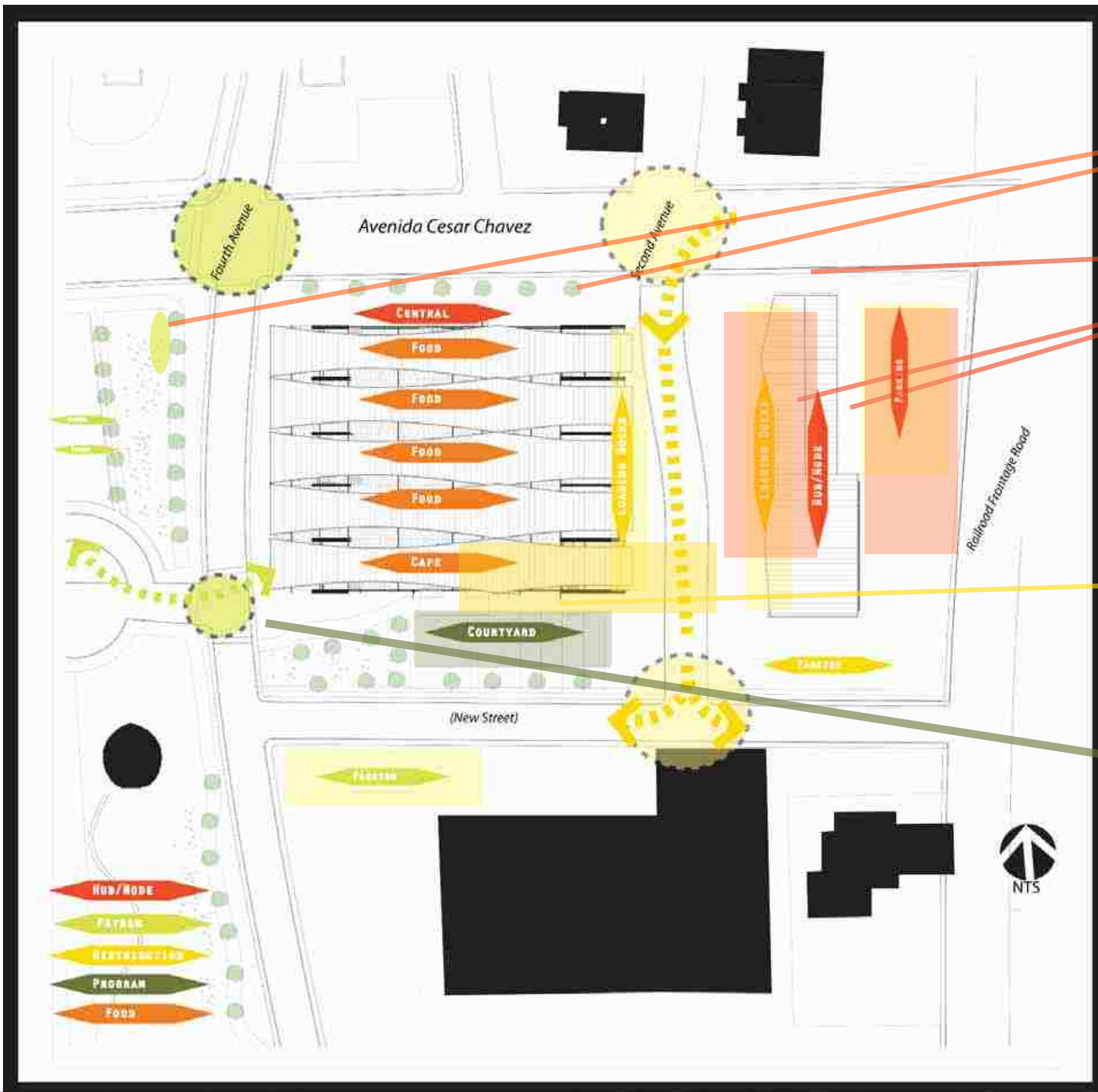
Catwalk-expanded retail- 9000sf

Administration (3rd floor)- 9900sf

Mechanical/HVAC 10300sf

Cafe- 400sf

Outdoor multiuse space



JOINT PUBLIC PARKING AND TRANSIT CONNECTIONS

NEW CONNECTING STREET FOR TRUCK ACCESS

VEHICLE PARKING-EMPLOYEE, TRUCK LAYOVER

OUTDOOR MULTIUSE AREA

IMPROVED CONNECTIONS TO KIVA AND NHCC

SITE ANALYSIS

Photo Credits

50- Barelmas and neighborhoods map

51-Nationa Hispanic Cultural Center (Courtesy of NHCC.org)

52-55- More images of the NHCC (MChism)

56- Figure Ground- prospective site highlighted in Orange.

57- Google Earth Image-courtesy of Google Earth

58-Site Analysis Site Diagram.

59- Site Improvments Diagram

61-62- Arterials phtots- 4th Ave (North), Avenida Cesar Chavez (East) (MChism)

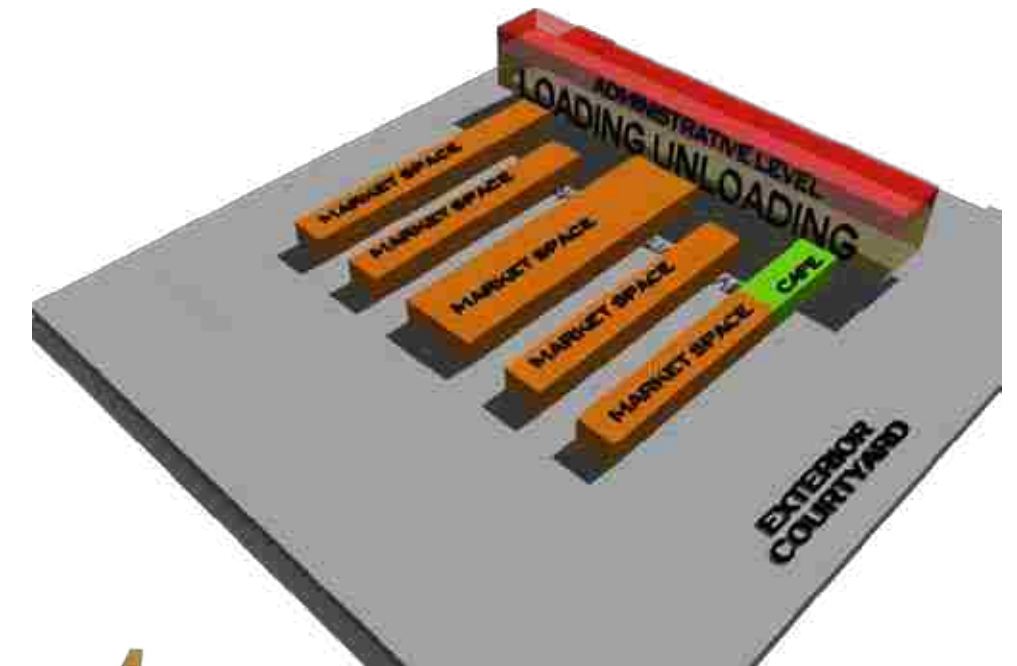
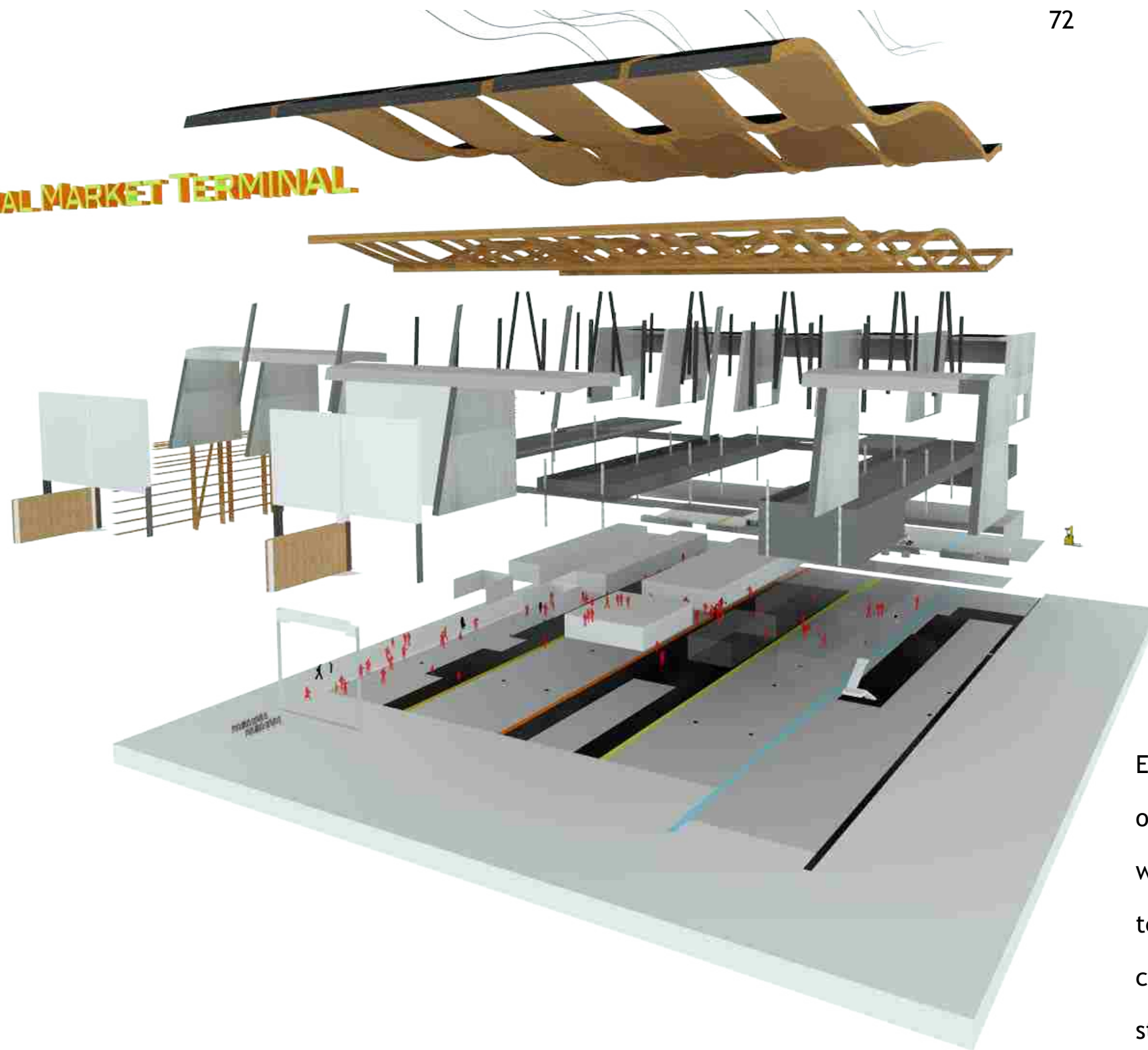
63-64- More NHCC grounds photos (MChism)

65-69- Avenida Cesar Chavez montage (MChism)

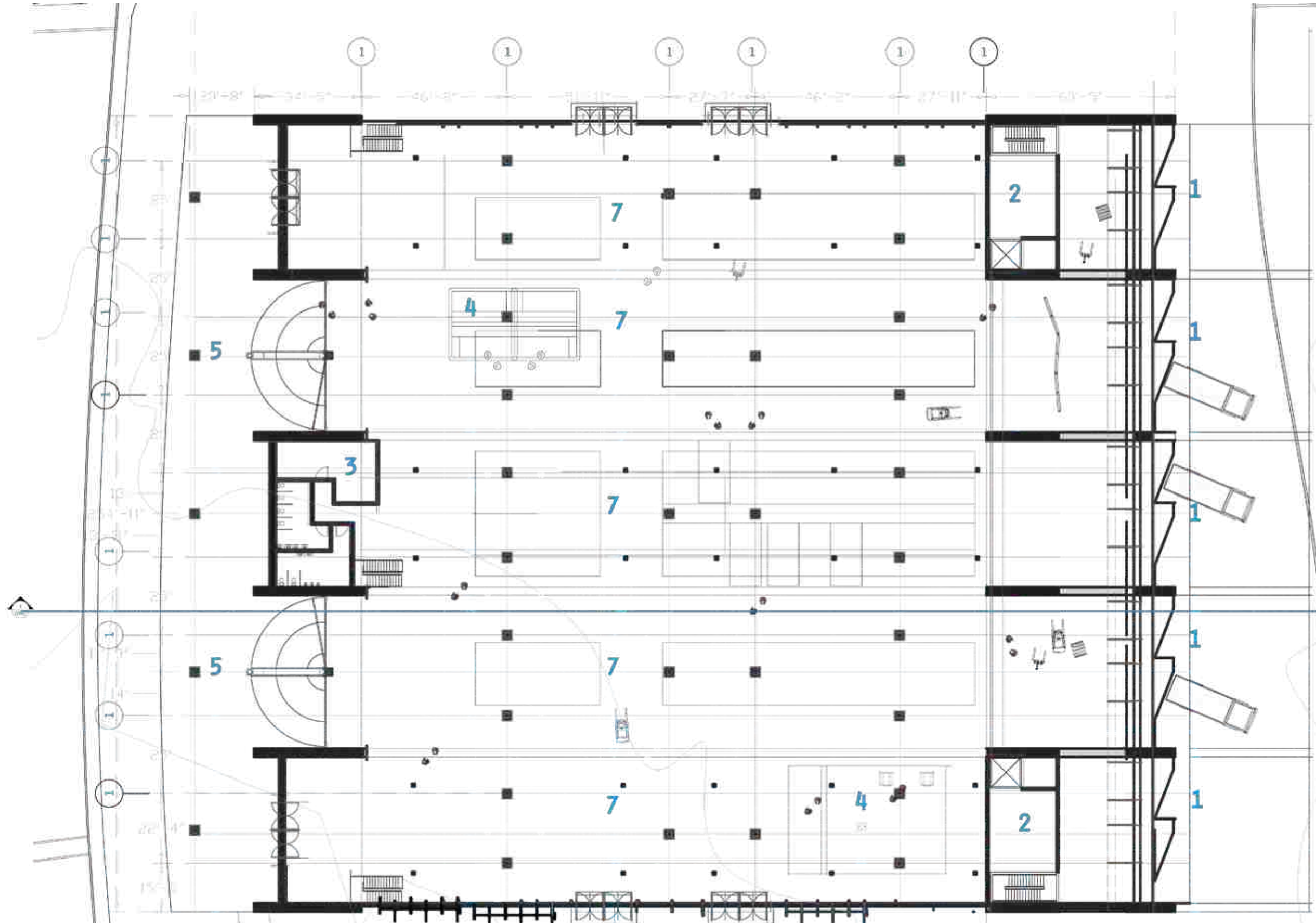
70- Site Improvements and recommendations



BAEELAS CENTRAL MARKET TERMINAL



Exposed Glu-lam beams provide the structure and rhythm of the market hall, and are supported by steel-reinforced wood columns on the market floor. The solid truck terminal core and the opposite public opening are solid concrete-reinforced adobe, and provide ground lateral stability. A screen of distressed wood provides shading for the North and South elevations. The catwalk is a steel structure, self supporting and inserted in and around the market hall.



- 1 LOADING DOCKS
- 2 CIRCULATION (0-3)
- 3 INFORMATION
- 4 CAFE
- 5 WALL DOORS
- 6 COURTYARD
- 7 MARKET STALLS



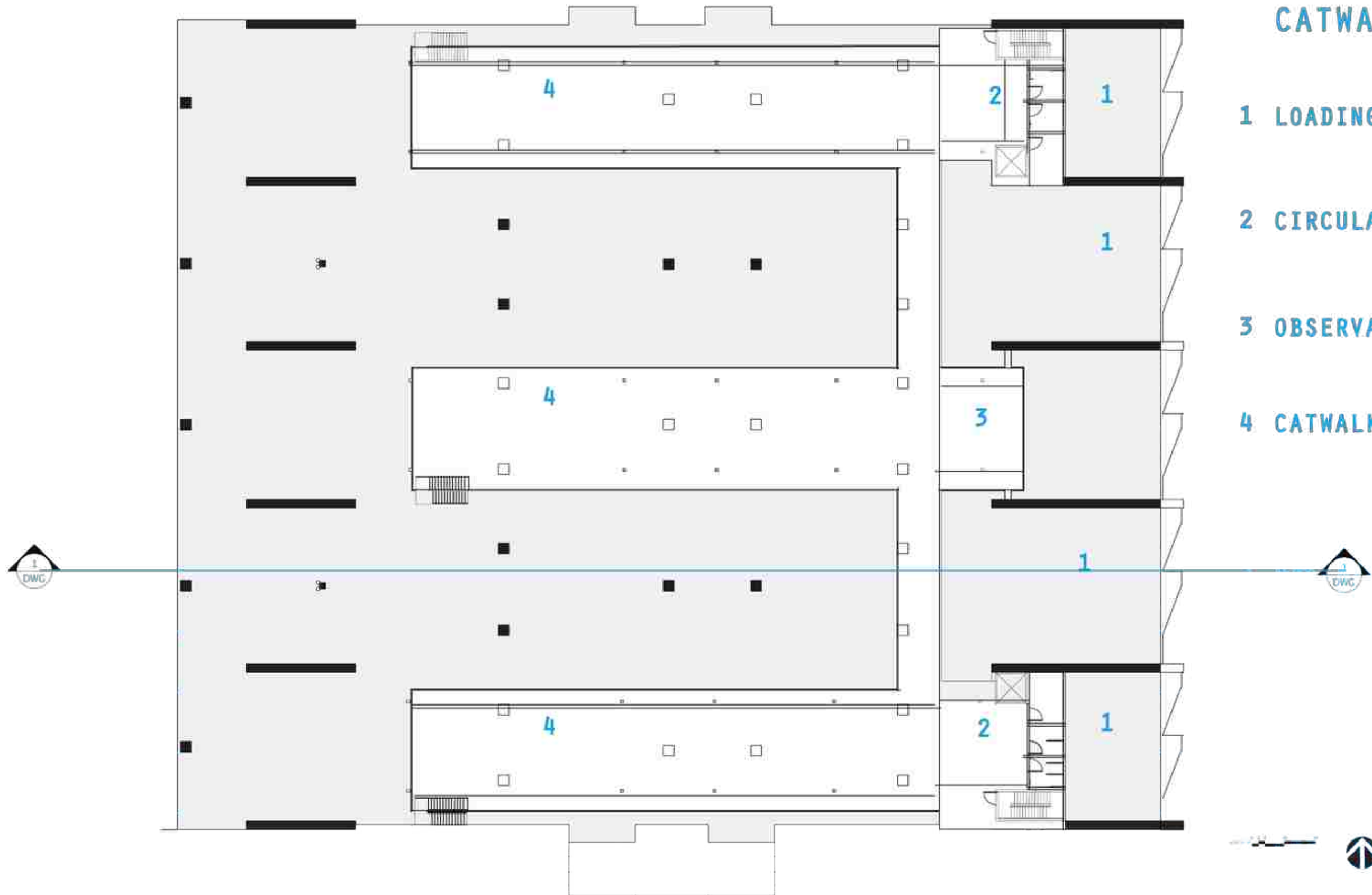
CATWALK MARKET (2)

1 LOADING DOCKS (BELOW)

2 CIRCULATION (0-3)

3 OBSERVATION DECK

4 CATWALK MARKET





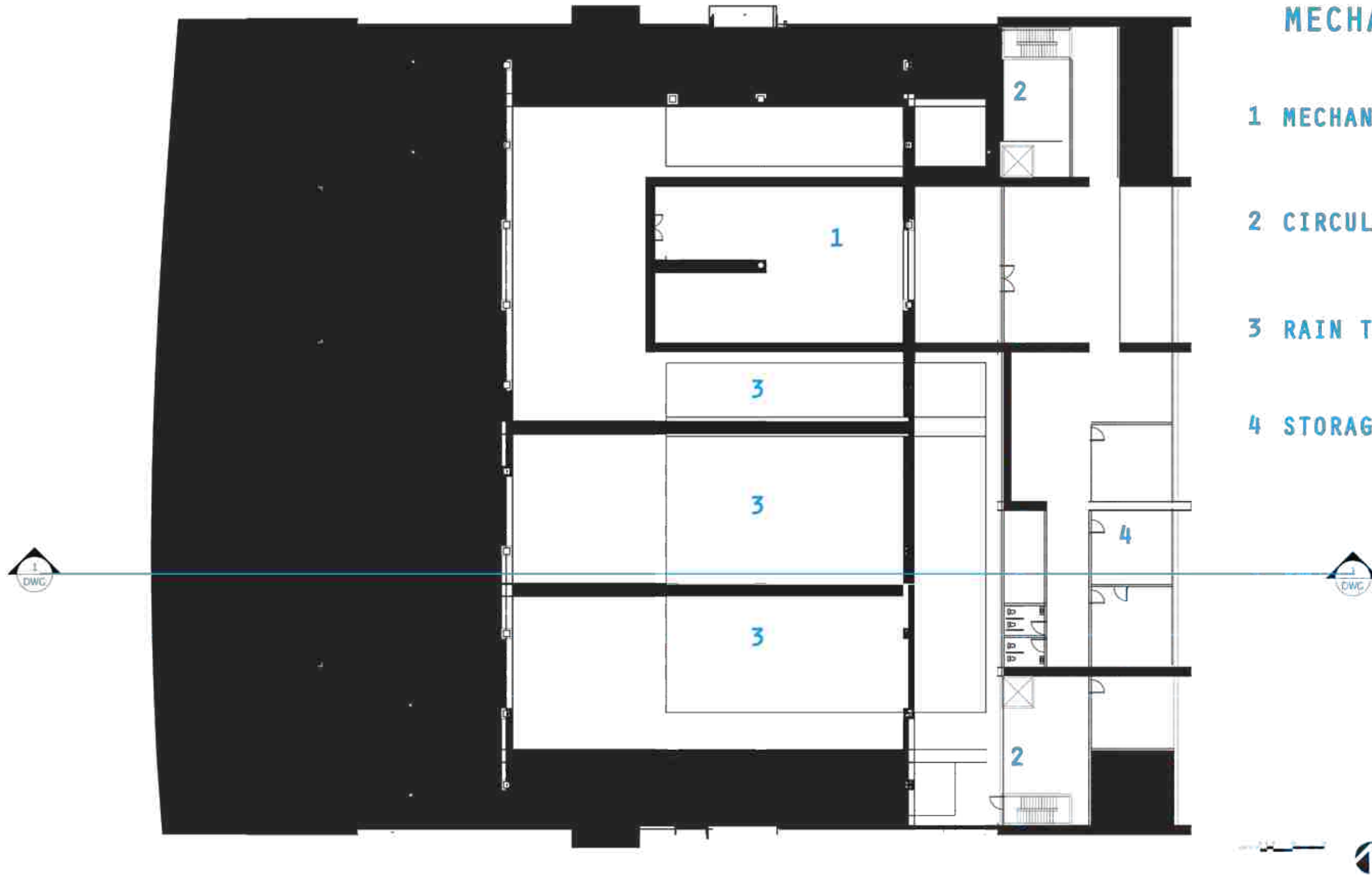
MECHANICAL (0)

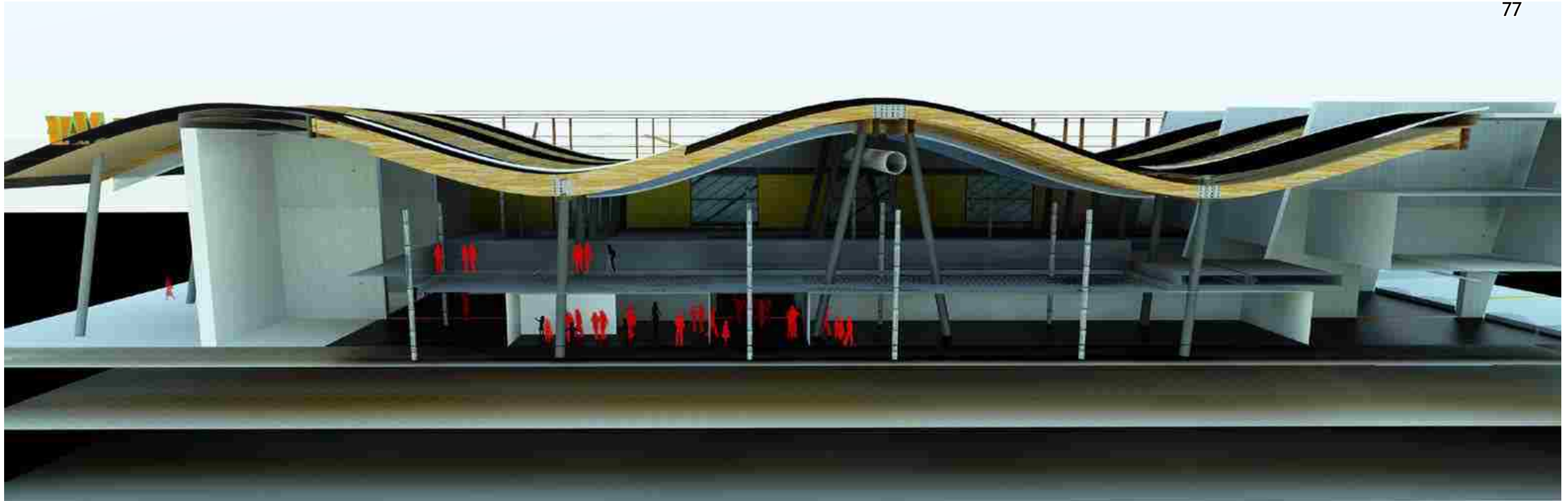
1 MECHANICAL

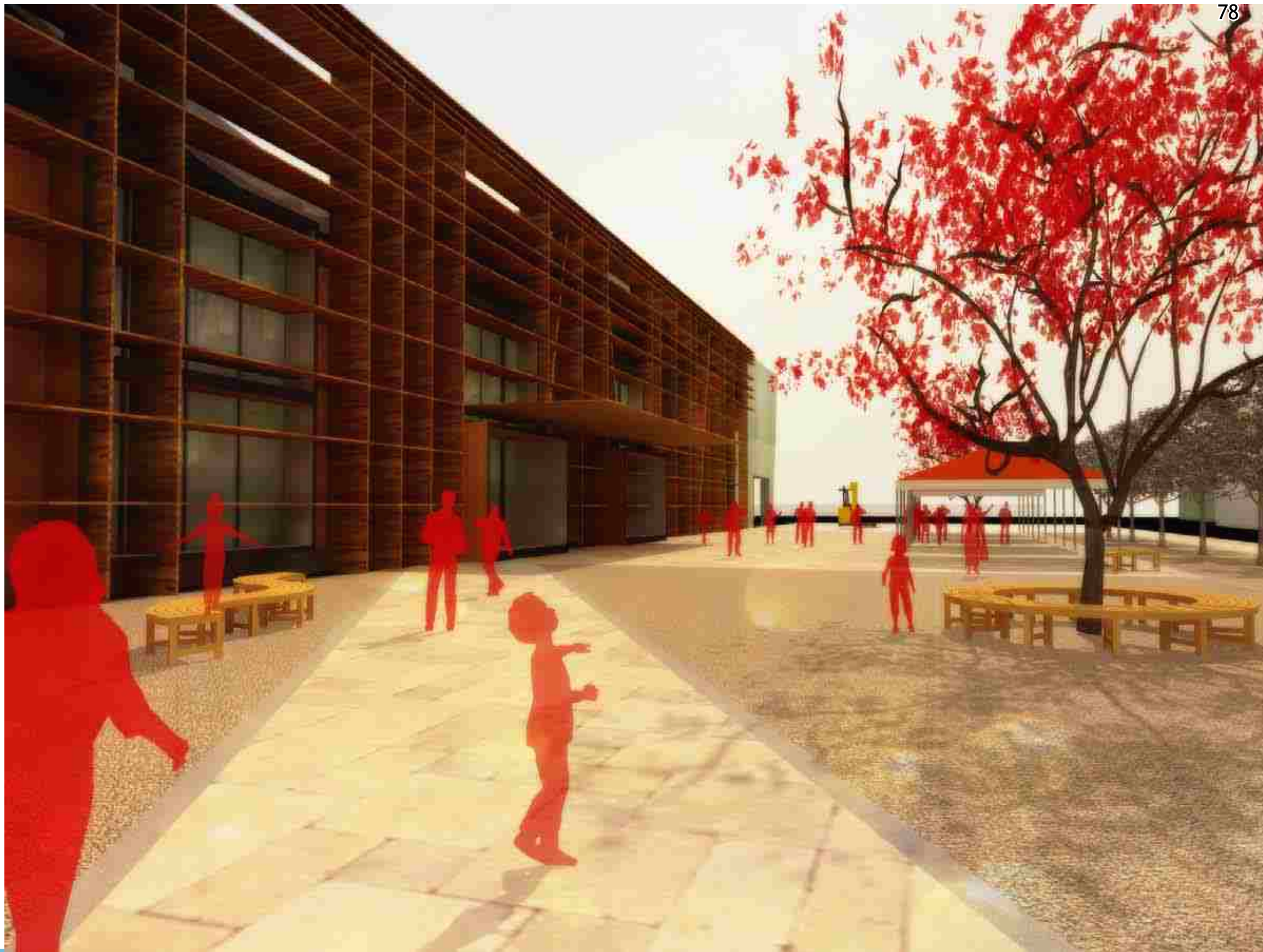
2 CIRCULATION (0-3)

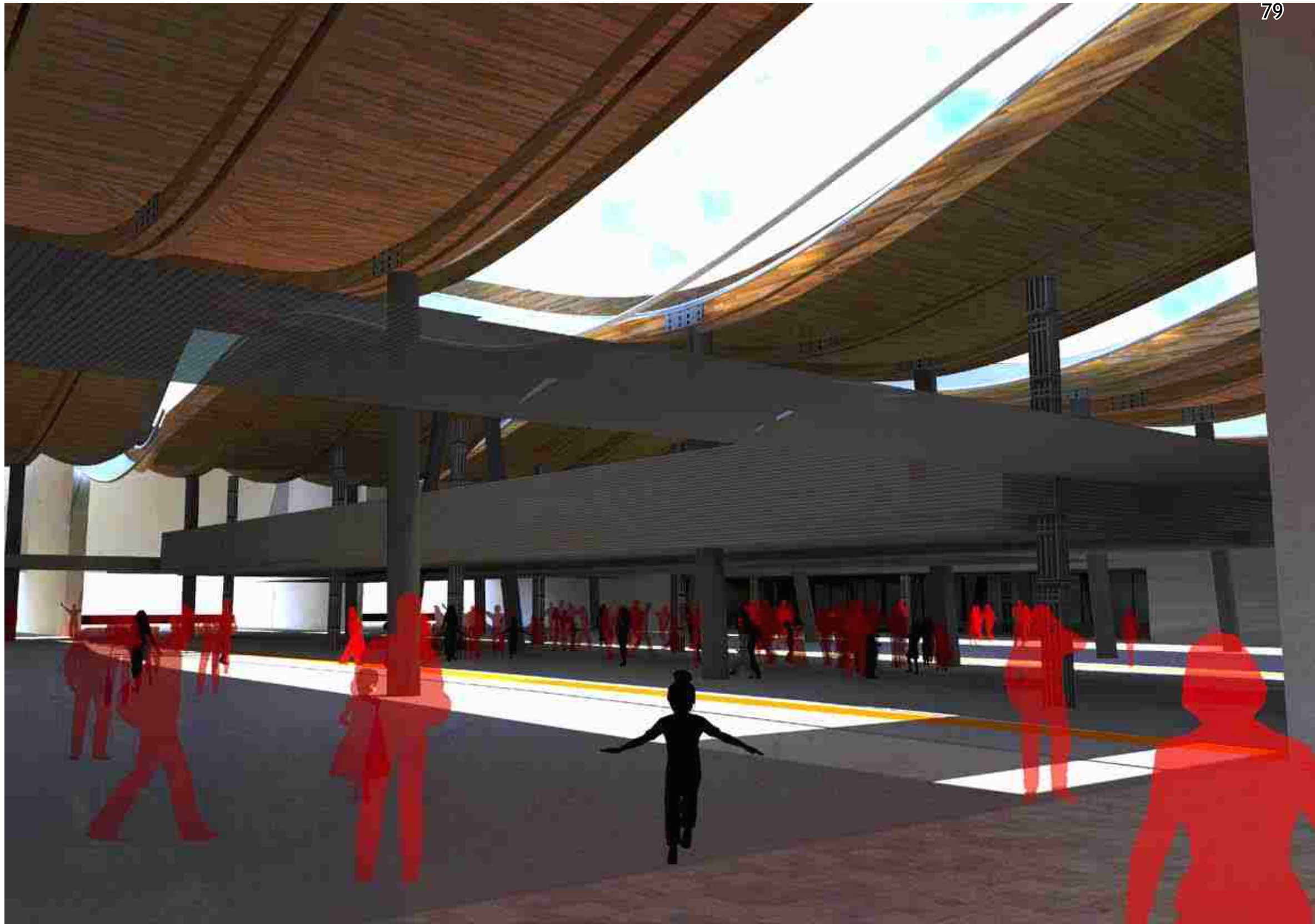
3 RAIN TANKS

4 STORAGE



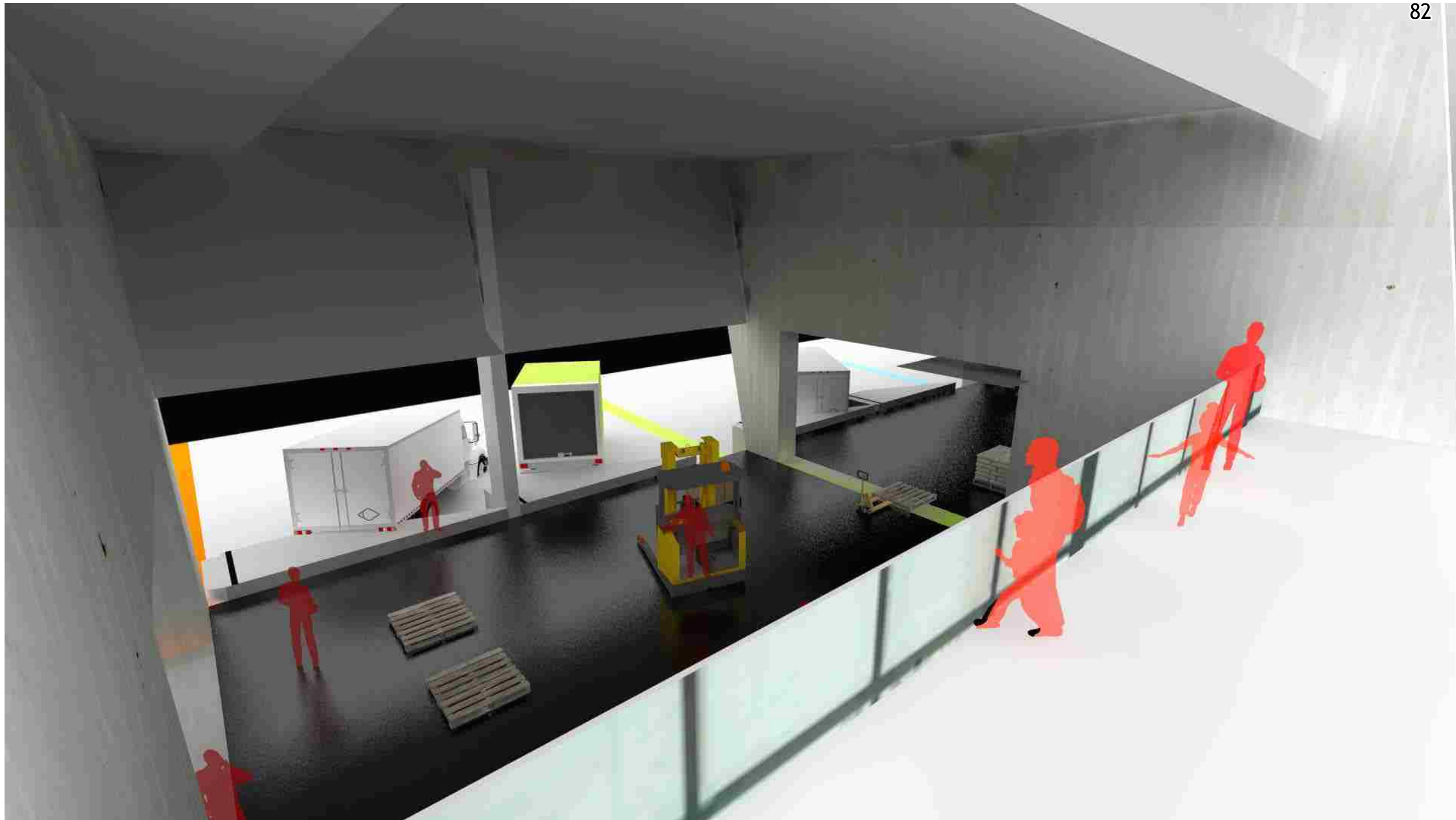


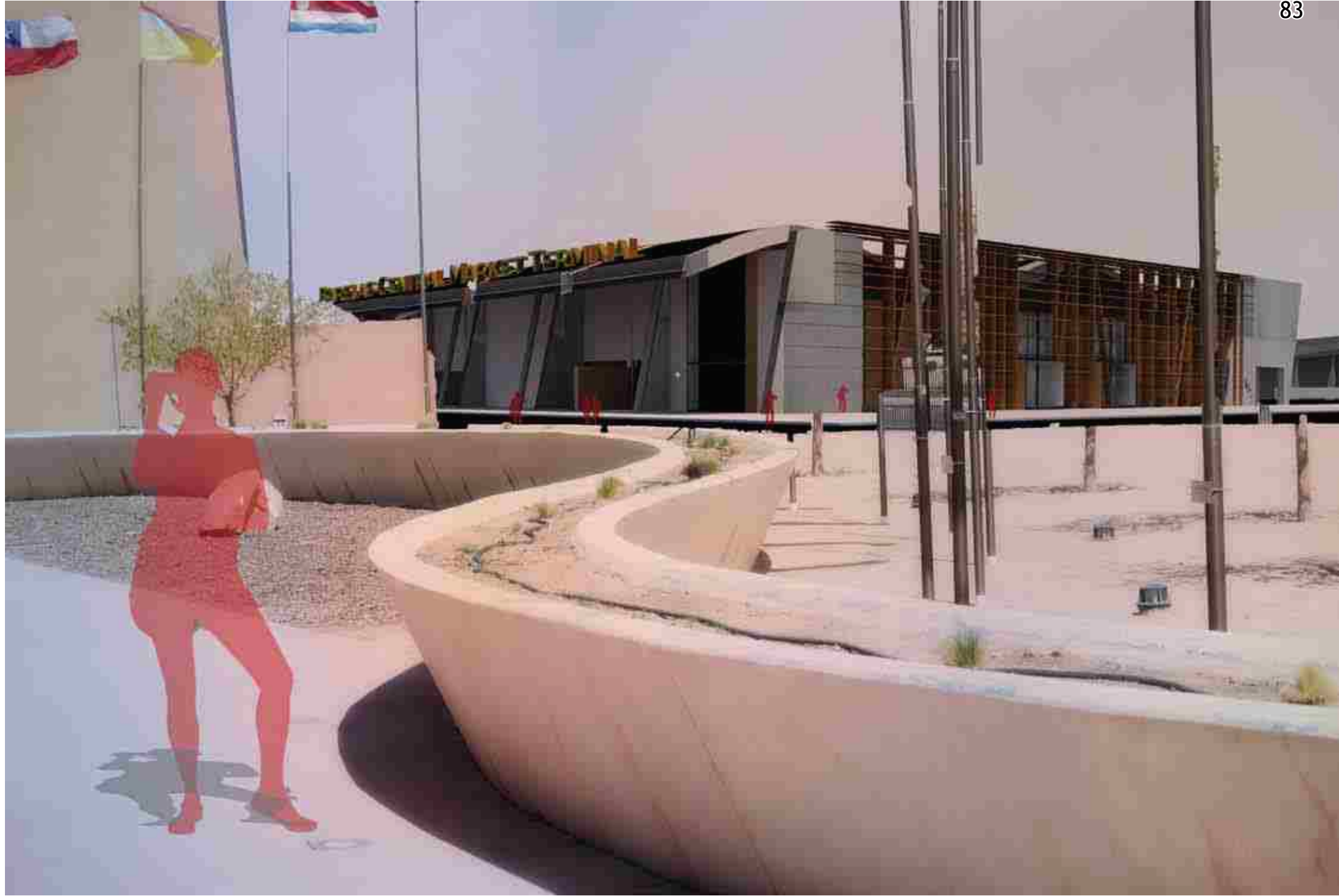












SITE ANALYSIS

Photo Credits

71- Bird's Eye view of West Elevation (on 4th Avenue)

72- Exploded Tectonic Model- exposed Glulam beams provide the structure and shape of the market hall.

73- Plan- Ground floor 1'=1/32"

74- Plan- "Catwalk" Floor- Second Floor 1'=1/32"

75- Plan- Administration Floor-Third Floor 1'=1/32"

76- Plan- Mechanical Floor- Sub Floor 1'=1/32"

77-Rendered Section Perspective, looking North.

78- Courtyard view Vignette.

79-Market Floor Vignette- no program visible.

80- Catwalk Floor Vignette.

81- Loading Dock Vignette

82- Catwalk view of loading dock Vignette.

83- View from Kiva Vignette

DISCUSSION AND CONCLUSION

Final Presentation Discussion

In the final presentation, several implications for implementation were raised by the review jury in response to the central market design proposal. This section will reference the presentation discussion.

I found the suggestions helpful and on-target with the goals proposed with this project. My next steps would be to expand the scope of the site by incorporating some of the feedback given from the review panel. The jury at first praised the concept and site for its utilization of existing infrastructure and overall conceptual relevance. The discussion continued to questions raised about the residential connection to the neighborhood, as well as the possible unseen changes in traffic patterns and land use. Several suggestions were made to enhance the landscaping elements to create a more unified experience between the market and the NHCC. Much of the discussion revolved around tectonics; as the overall program and schematic design needs began to solidify, I moved swiftly into exploring the immediate spatial needs of a market hall and vehicle terminal. This process was iterative, but unfortunately I did not document my process well enough to convince the jury of some of my material and form conclusions. The roof form, in particular, could have been strengthened by further diagrammatic explanations of daylighting and program associations. Additionally, the planned model was abandoned due to time, and it could have potentially added an extra dimension to the discussion.

The jury also wanted to see a more realized relationship between the satellite sites and the central market; future effort could be spent graphically describing this relationship. Additional suggestions for the project included a more in-depth study of the passive lighting strategy as well as some regionally appropriate materials like adobe. A potential division between the casual “visitor” customer and the market floor was suggested, with the truck circulation potentially being pulled into the building, and the entire mezzanine floor touching down and becoming the ground plane at the point of pedestrian access on 4th Avenue; this dynamic “over and under” move could extend the experience of the market and food system while potentially creating a more efficient market floor. A final suggestion proposed that the entire site could be enhanced by expanding the program to the adjacent site, essentially tripling the market and removing all existing structures. I found the suggestions helpful and on-target with the goals proposed with this project. My next steps would be to expand the scope of the site by coopting the adjacent lot, expand the mezzanine to connect with the ground plane, effectively allowing the pedestrian market to float above the vehicles and chaos below, and I would address the climate and daylighting issues with more in-depth study of the use of materials and shading techniques. The organization and relationship of the satellite sites and regional farms is still underdeveloped, and it might be interesting to examine the transfer process of goods from farms to the hubs both from a process perspective but also from an architectural-tectonic perspective.

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