

Expanding urban cultural production: operational landscape of 60 million chickens

David Karle

University of Nebraska, Lincoln, Nebraska

ABSTRACT: This research paper tackles the principle question of how operational landscapes operating at a territorial scale are impacting rural communities. The spatial design disciplines, as stewards of the built environment, need to take concerted steps to broaden their scope of design related to the franchise-driven space of corporate America. No longer can the permanence of architecture fall victim to the dynamic and flexible systems that created it. As such, this paper will present a case study focusing on Costco's forthcoming chicken plant in Fremont, Nebraska as a form of "urban" cultural production constructed to service the 60 million rotisserie chickens sold by Costco wholesale stores each year.

KEYWORDS: Urbanism, Rural, Architecture, Operational Landscape

INTRODUCTION: OPERATIONALIZED [LANDSCAPE]

We exist in an Urban Age where more than half of the world's population lives in cities. This trend is predicted to continue, with this figure increasing to two-thirds by the year 2050 (United Nations, 2018). Due to the ever-increasing size of the large population centers, the majority of urban research has primarily focused on cities or megaregions, though the urban is a form of cultural production that also involves the logistical and operational landscapes of the rural countryside. For several years the exploitation of rural space has been discussed by leading scholars in the fields of architecture, landscape architecture, and planning. Waldheim and Berger discuss the role of the logistics landscape, offering that "little attention has been given to the new landscapes necessitated by the growth of logistical networks and their attendant infrastructure" (2008). While Waldheim and Berger's essay was written in 2008, their insight remains relevant today as these landscapes of logistical networks continue to generate new scales and patterns of urbanism that are still rarely discussed or attended to by the design disciplines. As a result, hyper-efficient protocols based on corporate and logistical operations continue to transform the built environment outside of large city centers in ways that often take precedence over traditional models of growth.

Radical transformations of land-use, infrastructure, and ecology that take place far beyond urban city limits have been described by Neil Brenner as operational landscapes of planetary urbanization, all of which have made urban density possible (2018). Examples of these transformations include the resource extraction, waste management, food production, water use, energy harvesting, improved transportation networks, and creation of infrastructure that sustain urban society. In 2014 Brenner posited that "even for those of us who may be focused [research] on the cities as zones of intervention [design], we can't understand what is going on within them unless we look outside them, far outside them," thus situating a vast space beyond urban areas in need of recognition and further exploration. This vast space has played a significant role in supporting urban growth throughout history, one such example being the clear-cut logging operations in the midwestern United States and central Canada between 1890-1920 that provided the lumber to build the modern commercial centers of Boston, New York, and Philadelphia (Belanger, 2010, 9). Even today, this and other transformations continue to create significant social, spatial, economic, and environmental change in rural spaces.

1.0 OPERATIONAL SPACES

1.1 Operationalized [Great Plains]

Most city inhabitants remain disconnected from the exploited operational landscapes that sustain their daily lives. Cities operate in a global-urban context, meaning that the globe acts as a continual process of urbanism where urban and rural spaces impact and influence one another. As a global issue, this interaction holds particular importance in the Great Plains given that the region's rich resources and vast infrastructure continue to support major cities throughout the world. Regional examples of Great Plains operational landscapes include Tyson's meatpacking and Costco's chicken farming, along with the region's agricultural production, commercial distribution centers, ethanol production, and wind farms, with many of these systems generating corporate monotonies such as Tyson Fresh Meat, Madison, NE (community population: 2,398, 50% employed) and AG Valley HQ, Edison, NE (community population: 131, 62% employed) (see Figure 1). With each monotown comes a series of supporting architectural and planning considerations that typically last longer than the industry itself, and in more than one instance, after the corporate operation has run its course, cheaply constructed buildings and poorly planned spaces remain unused with little hope for repurposing. One recent example is a series of ethanol plants in Iowa and Minnesota that were closed in late 2018 due to low profit margins and currently sit unused amidst the rural landscape. With the countryside continually being altered based on the needs of cultural production for urban centers, understanding and documenting the systems altering both rural and urban communities is vital. Further investigation is necessary to understand the impacts of urban systems and operational landscapes impacting the Great Plains.

COMMUNITY CASE STUDY | MONOTOWNS

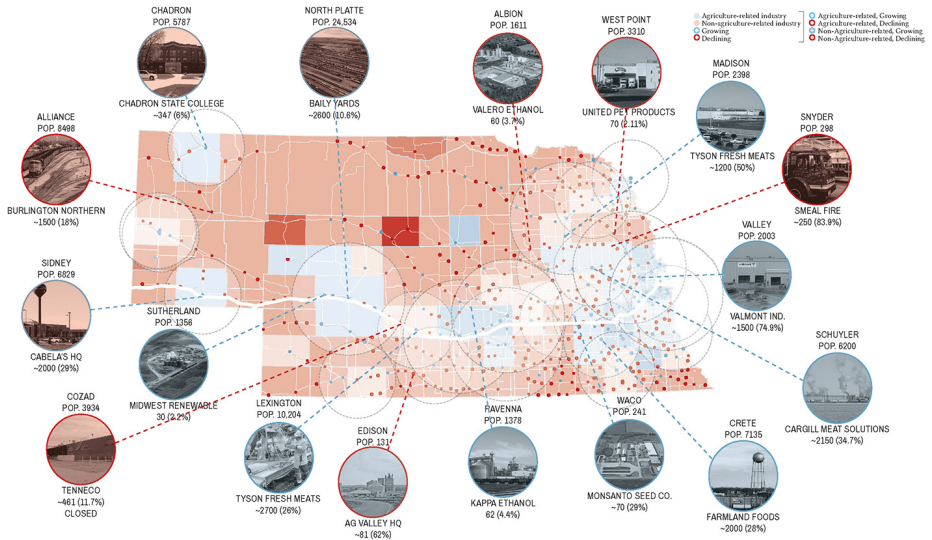


Figure 1: Preliminary taxonomy of Nebraska's operational landscapes located in monotonies such as Tyson Fresh Meat, Madison (community population: 2,398, 50% employed) and AG Valley HQ, Edison (community population: 131, 62% employed). (Illustration by Caitlin (Tangeman) Snyder.)

Agriculture plays a significant role in the organization of space and logistics throughout the Great Plains, and the region is best known (to a fault) for maximizing the yields of primary agricultural crops such as corn and soybeans. Equally significant are the second-tier logistical operations benefitting from primary agriculture yields, which include livestock (cattle, hogs, poultry, sheep) and energy (biodiesel and ethanol). Most of these first- and second-tier operations have been labeled as high-importance and are well documented. The state of Nebraska specifically is the third-largest producer of corn in the country, ranks second in ethanol production and distillers grains (the feed ingredient produced by ethanol plants), ranks

second in cow-calf production, and is the number-one producer of cattle on feed (*Nebraska Corn Board*, 2018). Nebraska and Iowa are primary sources for agricultural products and their geographic location is touted by corporations for their many cost-saving benefits.

2.2 Operationalized [Costco]

In 2016 plans were announced to expand poultry farms in the Great Plains. The potential expansion of these operations has been led by Costco Wholesale, which is set to redefine their current operating procedures of production and distribution for rotisserie chicken. The operationalized Great Plains was sought as a potential benefit to Costco Wholesale in considering the future of their rotisserie poultry operation.

To set the stage and appropriately situate the Nebraska poultry farm we must start with Costco's \$1.50 hotdog and soda combo, the price of which has remained unchanged since 1985 and is often referred to as the best deal in the entire store. In 2009 when Costco lost its main hotdog supplier (Licata, 2018) the company was forced to take over the manufacturing supply chain of hotdogs and now sells its own Kirkland brand hotdog. In 2016 Costco sold 128 million hotdogs in its 759 worldwide food court locations (purportedly four times the number sold by all major league ballparks combined, Maxfield, 2016), illustrating the financial impacts that large commercial businesses have when they take over supply chain logistics. Now Costco is planning to enter the poultry production business with the hope of streamlining operations and cutting costs.

2.3 Operationalized [poultry farms]

Tyson and Perdue are currently the two leading producers of poultry in the United States, with the Southeast U.S. serving as their primary region for production due to its year-round climate suitable for chickens (see Figure 2). Male and female chickens grown for commercially sold chicken meat are referred to as broilers, and are sold as either whole chickens or more frequently as specially cuts (breasts, legs, wings, etc.). A poultry operation typically consists of a series of buildings, including the hatchery (pullet barn), chicken barn, and slaughter plant. To the architectural discipline, these pre-engineered buildings are often categorized as logistically sophisticated but architecturally unimportant; they are typically built in haste and planned specifically for chickens rather than considering the building's total lifespan and environmental impact.



Figure 2: The first pullet barn constructed in Nebraska for Costco/Lincoln Premium Poultry. (Source: Lincoln Premium Poultry.)

Costco Wholesale is one major supplier that benefits enormously from poultry farming and meat packing, with the company's sales of rotisserie chicken having grown by more than 8

percent annually since 2010—a rate more than three times that of poultry consumption nationwide (Sawyer, 2018, 2). Acknowledging this growth, in 2016 Costco entered the poultry business for “surety of supply, visibility up the chain, and cost control” (Sawyer, 2018, 2) and to ensure a steady supply of rotisserie chickens that could be sold at \$4.99, a move reminiscent of how the company handled their hot dog operations.

To achieve the \$4.99 price point Costco is building a new \$300-400 million poultry production operation in Fremont, Nebraska. Nebraska and Iowa’s projected chicken farm production will handle 40 percent of Costco’s poultry needs, corresponding to roughly the western half of the United States along with Alaska and Hawaii (Gerlock, 2018). Nebraska and Iowa are important both for their geographic location and their production of corn and soybean, which already contribute to a significant operational landscape related to cattle grazing and meat packing (USDA, 2015). Will Sawyer, a lead animal protein economist, speaks to the significance of the change, stating that “never before has the U.S. seen a retailer integrate its meat supply to the farm level and take on direct exposure to the risk of animal husbandry, including feeding, animal welfare, harvesting, trade, disease and distribution” (Sawyer, 2018, 1). While Costco’s operational advancements are themselves significant for reasons both agricultural and economic, the design disciplines too must acknowledge the drastic spatial impacts and design opportunities brought about by these changes.

Dairy production is another animal protein business model that has adopted similar strategies of retailer integration. In 2016 Walmart announced that it was entering the milk processing business by building a \$165 million processing facility in Fort Wayne, Indiana. Similar to Costco’s plan in Fremont, Walmart promised a new building and high-paying jobs; consequently, between 2016 and 2017 Fort Wayne’s population increased by approximately 2,000 people. The plant will produce milk for roughly 500 Walmart stores in five states and process milk sourced from nearly 30 dairy farms in Indiana and Michigan. While both operations expanded integrated corporate supply chains to operate at the scale of both the processing plant and the distributed source material, one striking difference is that Walmart’s processing plant operations do not extend all the way to the farmer, with Sawyer calling Costco’s more complex operational plan a “new level of risk exposure Costco is taking on to protect an important product line” (Sawyer, 2018, 3). The Costco operation adds a further level of integrated risk in that individual farmers are required to invest \$2 million for each barn needed to participate.

Additionally, new Costco operations are changing farming practices. During the last several years family farms have reconsidered the future of their row crop farming practices and have turned to chicken barns as the next step. Throughout history the row crops and cattle of the Great Plains have supported urban growth by providing necessary food, and now the Costco operation’s chicken barns will serve the same end. As a result, the built environment of Fremont and the surrounding areas will be drastically altered as approximately 520 chicken barns are built over 130 sites (Farrell, 2018).

2.4 Operationalized [Fremont, NE]

Fremont has a population of roughly 26,000 people and is located 40 miles northwest of Omaha. The town currently participates in logistical operations via their single largest employer Wholestone (formerly Hormel Foods), a hog-processing plant that has been described as the country’s largest producer of Spam and that processes 10,000 hogs a day (Grabar, 2017). As a result, Fremont is connected to both highway and train infrastructure to serve Wholestone’s logistical and operational needs. To support and expand this connectivity, US-275, the primary highway between Omaha and Fremont, was updated to a four-lane expressway leading to downtown Omaha throughout 2002-2009. In December 2017 the then-Hormel workforce consisted of 4,000 Fremont residents (Grabar, 2017), a network and skilled workforce that was considered a benefit to Costco Wholesale when considering potential locations for future poultry production.

The new plant is scheduled to open by March 2019 and Costco agrees to keep it under production for at least 15 years (see Figure 3). With an estimated 17 million new chickens expected, the operation is anticipated to be among the region’s larger economic engines. The operation is also expected to bring an estimated \$1.2 billion annual economic impact to the state, which led Governor Pete Ricketts to pronounce, “Folks, that’s how we grow Nebraska,” during a rally held on the Fremont outskirts. While Ricketts is clearly acknowledging the financial impact to the state, he makes no mention of the community’s willingness to participate in a new, global economic market on a grander scale. Costco’s operating procedures are exemplary in that they expand the company’s logistical operations to envelope poultry farming practices in ways that cause the space of distribution, delivery, and consumption to form one of the “more significant transformations of the built environment seen in the region over the past decade” (Waldheim, Berger, 2008, 219).

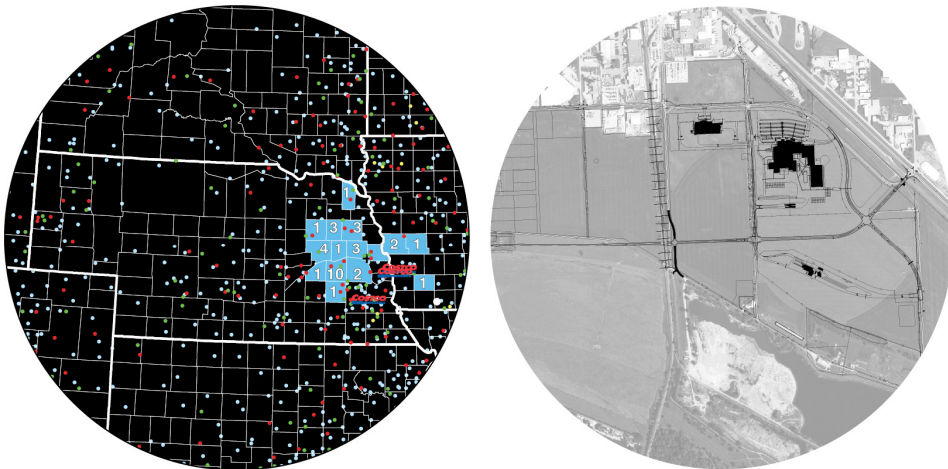


Figure 3: Nebraska county pullet barn applications and three Costco locations (left), Fremont processing plant shown in black just south of the city (right). (Source: Planning Commission Agenda Special Meeting, Monday, July 18, 2016)

Changes to Fremont will include the addition of a processing plant located less than one mile south of downtown, though less apparent will be the 520 chicken barns distributed throughout the region. Costco will bring approximately 1,000 jobs to Fremont, including 820 production jobs and 100-supervisory or professional positions. Employees are expected to come from the surrounding counties of Douglas and Lancaster and to have a major impact on housing demands in Dodge county, where Fremont is located (*Greater Fremont*, 2017, 3.5). The Economic Development (ED) boost would affect the city of Fremont to the point of requiring the development of 1,194 total housing units by 2022, including 562 owner and 632 rental units, at an estimated target budget of \$234 million (*City of Fremont*, 2018). A workforce housing initiative has been planned to provide housing for low-to-moderate income workers along with mixed-use buildings (*Greater Fremont*, 2017). With Costco creating both a direct and indirect impact on the city and surrounding areas, the question arises as to how the design disciplines can best participate in the change.

2.5 Operationalized [architecture]

From Albert Kahn in the 1920s to William McDonough in the early 2000s, the architecture profession has long been designing industrial and manufacturing facilities. In the 1920s rapid rates of industrial growth required Kahn to experiment with construction techniques and structural concepts, resulting in a new building type specifically for assembly line manufacturing (Bucci, 1993, 31). Similarly, McDonough’s design for the Ford Truck Plant in Dearborn, Michigan implemented a 10-acre vegetation roof, the largest installation of its kind

in the United States. With the massive Costco rotisserie chicken expansion and similar projects occurring throughout the agricultural and livestock industries, a comparable need exists to research new solutions and experiment with new building types suited to both the industry and surrounding communities. With this in mind, the design profession should play an active role in the evolution of architecture related to these specific needs. How can these rapid changes foster innovative architectural solutions similar to those of the past? Or, in the absence of such solutions, will small towns outside of urban centers continue to be exploited for their geographic location and proximity to desirable resources?

The optimization of Great Plains monotonowns is often littered with utilitarian forms of required industry buildings and supporting developments of housing and retail, an environment that is, “for better or worse, the contemporary North American urban realm” (Waldheim, Berger, 2008, 238). Building these monotonowns so quickly requires us to consider what happens when these companies leave the town, since the corporate logic of creating quick and fast architecture often responds first and foremost to the needs of the company and the drive to maximize profit (see Figure 4). While most architects generally agree that these pre-engineered corporate models of architecture (e.g., strip malls and big box stores, as well as chicken barns) are highly efficient in their use of materials, space, and construction assembly, can these buildings continue to facilitate highly calibrated logistics while also considering spatial, material, and environmental impacts before, after, and during use? Considering the limited 15-year lifespan of Costco’s commitment to Fremont, it is vital that we examine possible future functions of these buildings, or even plan for the deconstruction of these utilitarian forms once they’ve outlived the usefulness of the operational model. If future function of these poultry buildings is difficult due to contamination and other environmental concerns, then their deconstruction and the reuse of their materials might be a better option. Such concerns are of particular importance to farmers who have spent \$2 million on these barns, and to create a building that can more easily be deconstructed, the initial design must reconsider material selections, connections, and assemblies.



Figure 4: Fremont’s new poultry processing facility. (Photo courtesy of Twilight Greenaway Animal Welfare, Rural Environment and Agriculture Project.)

If such alternate applications cannot be found, then new strategies for supporting developments of housing and retail should surely be considered as well. Potential strategies could include a responsive housing typology capable of adjusting to varying family size and co-sharing needs as well as to unstable short-term corporate commitment to the community; for example, by using flexible modular housing units that could grow and shrink based on both community and corporate needs. In addition, the environmental impact of these systems and structures cannot be ignored, raising the bigger question of whether responsive architecture can effectively consider its environmental impact while also enabling rural communities to balance short-term corporate and long-term community needs. But the design and architecture professions cannot achieve this alone; to succeed, the professions must partner with material suppliers, fabricators, and construction firms—similar to the partnerships formed in the 1920s—to challenge industry standards with the desired outcome of designing a more responsive architecture. Instead of the design and construction process being linear and reactionary, this is a call to action for a more cyclical and responsive design and construction process. This revised process will generate a reactionary architecture that responds to fluctuating corporate and global economies while minimizing the negative effects on the local community.

The social, spatial, economic, and environmental future of Fremont and the surrounding area is unknown, though as the area braces for the impacts of Costco Wholesale poultry operations the design disciplines must pay closer attention to the continued pressures faced by rural communities, especially those choices that are urban-centric. The pressures faced by rural regions like Fremont are in some ways equal to—if not more spatially impactful than—those occurring within the urban areas themselves. The environmental impacts on these rural communities too should not raise any less concern than the impacts on urban areas.

CONCLUSION

The facts presented here indicate the pressure faced by small rural communities in the shadow of urban expansion. These pressures culminate in the changing social, spatial, economic, and environmental qualities of rural America. When asked whether understanding the role of buildings in the construction of multiple scales of cultural identity can help us understand who we are, we must first expand our definition of both “buildings” and “cultural identity.” The design discipline must start to engage buildings not typically produced by architects or urban designers, including those constructed for solely utilitarian purposes. In addition, advanced construction assemblies should consider a building’s lifespan in response to fluctuating corporate economies, including the elimination of the operational role for which they were originally designed. This repurposing of utilitarian buildings has occurred more recently and publicly with the reprogramming of suburbia’s big box stores, a consideration that can and should be made at the frontend of design rather than serving as a necessary reaction to social and economic forces. These notions, once accepted, will open up new spatial configurations and design opportunities for the disciplines.

The phrase “cultural identity,” commonly held in the Urban Age, can also no longer turn a blind eye to the impact on rural space that focuses primarily on urban growth. No longer should we consider the formal and spatial production of cultural identity to be solely regulated to the urban. Designers of the built environment must acknowledge that cultural identity occurs within and far outside the city center. As discussed by Brenner, by expanding these definitions, we begin to participate in the real cultural identity being produced, which is not only urban or rural, but global.

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