ABSTRACT

Title of Thesis:	GREEN BEER: PRESERVING DAYTON'S INDUSTRIAL LEGACY THROUGH SUSTAINABLE BREWING PRACTICES
	Emma T. Schrantz, Master of Architecture Master of Historic Preservation, 2019
Thesis Directed By:	Professor Emeritus Karl Du Puy, School of Architecture, Planning, and Preservation

Small-scale "craft" brewing is experiencing a renaissance in American culture and has caused a cultural shift in urban communities. The movement has rapidly impacted urban development in American Rust Belt cities, and in many ways, has promoted the rehabilitation of historic buildings and districts. This project explores ways in which craft brewing has increased economic redevelopment of historic places, as well as investigating larger trends and benefits of sustainable preservation and brewing. These findings will be synthesized through the design of a proposed 'sustainable craft brewery' and business collective, representing the intersections of urban agriculture, historic preservation, and sustainability. Style, materiality, and brand management will be inspired by the history and culture of the Wright-Dunbar Village, which is at the cusp of economic redevelopment in Dayton, Ohio. The goal of this design intervention is to preserve the legacy of a forgotten place, while creating a new urban community and tourist destination for Dayton.

GREEN BEER:

PRESERVING DAYTON'S INDUSTRIAL LEGACY THROUGH SUSTAINABLE BREWING PRACTICES

by

Emma Theresa Schrantz

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degrees of
Master of Architecture and
Master of Historic Preservation
2019

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Acknowledgements

To my Chair, Karl:

I cannot thank you enough for your patience and support as I worked through some low points in my life to complete this project. Your design expertise took my project to new heights, and I am deeply appreciative of all you have done for myself and for my classmates.

To my Committee Members, Don and Brian:

Thanks for being in my corner, and supporting the development of my design and narrative. It has been a pleasure working with you, and being a member of the MAPP Community.

To my Family and Friends:

To my parents, for always supporting 10-year-old Emma's dreams when she decided to be an architect;

To Luke, for your love, support, and for learning the brewing process with me, despite being 1,600 miles away;

To Ethan, for remaining my friend since our first day at the University of Cincinnati, and for introducing me to the wonderful potential of the Wright-Dunbar Village.

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List of Abbreviations

AB-InBev	Anheuser-Busch InBev SA/NV
BA	Brewers Association
GOPC	Greater Ohio Policy Center
GSA	General Services Administration
LEED	Leadership in Energy and Environmental Design
LMC	Dayton Landmarks Commission
NPS	National Park Service
NRHP	National Register of Historic Places
NTHP	National Trust for Historic Preservation
OCBA	Ohio Craft Brewers Association
SHPO	State Historic Preservation Office
USGBC	United States Green Building Council

Introduction

"Still others believe in the 'authenticity' of small batch, local brewing and breweries, both as businesses and ***centers of city – even neighborhood – culture.****"*

– Adam W. Tyma (2017)[1]

As a dual degree student in both architecture and historic preservation, one of the most pressing inquiries is how architectural interventions can rehabilitate and reactive vacant or neglected historic districts across the United States. The proposed solution to this question is framed through the development of one of the United State's most prevalent, modern industry: Craft brewing. This project serves as a love letter to my home state of Ohio and to the industry which has captured my interest for the past five years.

Through the lens of craft brewing, this thesis investigates areas of sustaining industry, legacy, and community. In this way, sustainability means more than just green or energy-efficient technologies and systems – it includes the continued life of intangible aspects such as social, economic and historical legacies. This thesis proposes a project at the intersection of industry, legacy, and community, centered around craft beer and food production. The project is titled the *Wright-Dunbar Craft Collective* to reflect neighborhood and program identity.

[1] Tyma, Adam W., Ed. *Beer Culture in Theory and Practice: Understanding Craft Beer Culture in the United States*. Lanham: Lexington Books, 2017.

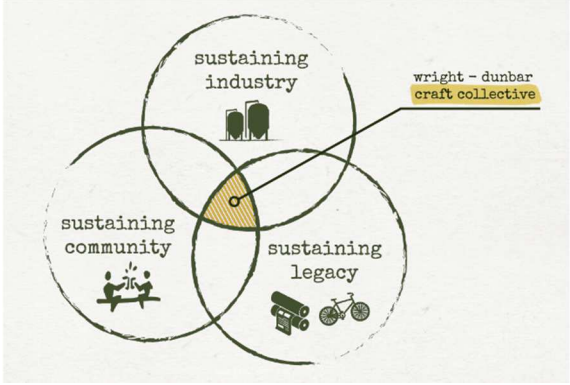

Figure 1: The overlapping initiatives of the Wright-Dunbar Craft Collective. (Source: Author)

Chapter One explores the rise, fall, and rebirth of midwestern Legacy Cities, and focuses on the social and economic conditions in the state of Ohio. Chapter Two expands on the history and context of Dayton, Ohio's sixth-largest city. Chapter Three visits the craft brewing industry, explaining technical elements and the process of brewing. Chapter Four recognizes the threat that climate change presents to the brewing industry, and advocates for the input of sustainable solutions in ground-up brewery design.

Chapter Five explores the selected site within Dayton's Wright-Dunbar Village, which includes buildings listed on the National Register for Historic Places. Chapter Six delves into the programmatic aspects of the project, including approaches to the rehabilitation of historic retail opportunities once located on-site. Chapter Seven establishes rehabilitation and design strategies, culminating in a final design proposal. Chapter Eight supports the design proposal and makes a case for the technology and economics of sustainable preservation. Finally, final observations and conclusions are summarized in Chapter Nine.

Chapter 1: Rust Belt Renaissance

A Case for the Revival of Ohio's Legacy Cities

> *"The critical question is not whether the small town can be rehabilitated in the image of its earlier strength and growth – for clearly it cannot* ***– but whether American life will be able to evolve any other integral community to replace it.****"*
>
> *– Max Lerner, American as a Civilization (1957)*[2]

Deindustrialization of the United States, starting slowly at the conclusion of World War II and gaining momentum in the 1960s and 1970s, had a profound impact on the vitality of the American Midwest. Cities like Detroit, Buffalo, Youngstown, Dayton, and Pittsburgh had initially thrived due to highly efficient manufacturing processes; and in some cases, a heavy reliance on a single, lucrative industry like grain processing, steel production, or automobile and airplane manufacture. Numerous urban planners and researchers have noted that the shift in economic focus to a more service-oriented market in the latter half of the 20th century had "turned many formerly bustling industrial towns into rusty relics of a glittering (if polluted) bygone era."[3] These cities were left in the dust, forced to manage an ever-growing inventory of abandoned industrial properties and fragmented neighborhoods. The continued decline in integrity led to the eventual moniker of the American 'Rust Belt' – areas which suffered from the decay of both industry and historic building character.

Urban communities affected by economic decline struggled to find a sense of pride in place, despite these areas being largely responsible for the United States'

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[2] *Lerner's theory remains a critical reference point in Ray Oldenburg's research of 'The Problem of Place in America'*. Oldenburg, Ray. *The Great Good Place.* (Philadelphia: Da Capo Press, 1999),

[3] Harrison, Jill Ann. "Rust Belt Boomerang: The Pull of Place in Moving Back to a Legacy City." *City & Community* 16:3 (Washington DC: American Sociological Association, 2017.) 263-283.

lasting legacy of global economic dominance. Rust Belt cities were characterized as having lost a central sense of community and place, and a rapid decline in population reflected the loss of economic integrity in these areas. Changes in American economic and cultural values emphasized the importance of a person being able to relocate frequently. However, this cultural value was largely only available to white American families, who were not affected by racially biased housing policies in the mid-1900s. [4]This author's own experience of being raised in a racially homogenous suburb of a Rust Belt city has been an iteration of this value – a common belief was that an achievement as an Ohioan was the ability to relocate to a major metropolis like New York, Chicago, or Washington D.C. As a result, the shifting cultural expectations for

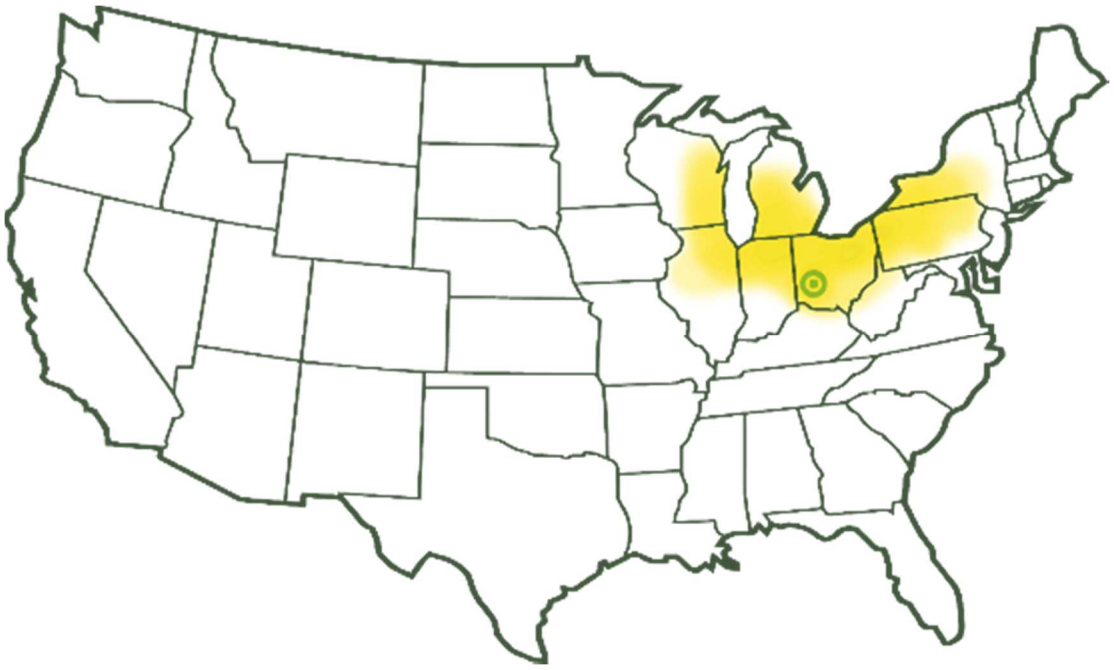

Figure 2: Region known as the American 'Rust Belt', with a greater concentration of American Legacy Cities. Dayton's location indicated in green. (Graphic by Author; with data by the American Assembly)

[4] Blakeslee, Jake. "'White Flight' to the Suburbs: A Demographic Approach." *Focus.* Winter 1978-79.

success stigmatized the choice to remain in decaying hometowns and original communities.

However, shifts in the modern economy have spurred a rejection of this transient value. Each year, an increasing number of Americans are choosing to return to their Rust Belt roots. Architecture and urban development theorists have noted a 'rebranding' of the Rust Belt, using terminology which respects and reflects the cultural embrace of these cities. The term "Legacy City" was used as a more appropriate representation of these cities, as they contributed to the rapid growth of America's economic legacy at the turn of the 20th century. The American Assembly, an urban policy group supported by Columbia University, has defined legacy cities as postindustrial spaces that experienced considerable loss of population and employment opportunities, which contributed to higher levels of residential and commercial vacancies, and a reduction in supportive policy, economic reinvestment, and urban development.[5] However, the historic character and lower real estate costs have made legacy cities more appealing to Americans, leading to a phenomenon known as 'return migration'.

Return migration is described as a person's active decision to return to a place that generally was a hometown or influential in some way to that person's life. Present research on the phenomenon provided the estimate that nationally, nearly forty percent of workers moving to urban centers qualify as 'return migrants'. Though no quantitative data can suggest the motivation or reasoning behind this increase, one

[5] American Assembly. "Legacy Cities". Columbia University, 2012. Accessed June 12, 2018.

strong indicator is the cultural rejection of suburban sprawl and related desire for walkable, affordable neighborhoods by many Americans.[6] This cultural trend also indicates why Americans not born in legacy cities may choose to leave more established urban strongholds like Chicago or D.C.

Urban theorists had surmised that cities with lower costs of living have led to a higher return on investment for residents seeking affordable options in the post-2008 Great Recession economy. Though salaries may reflect a lower cost of living, they also have an increased buying power – residents can afford larger spaces and more amenities.[7] This access to affordable Legacy living is advanced by the recent increase of American businesses such as Quicken Loans and General Electric, who have relocated offices from suburbs to affordable urban centers. Many companies

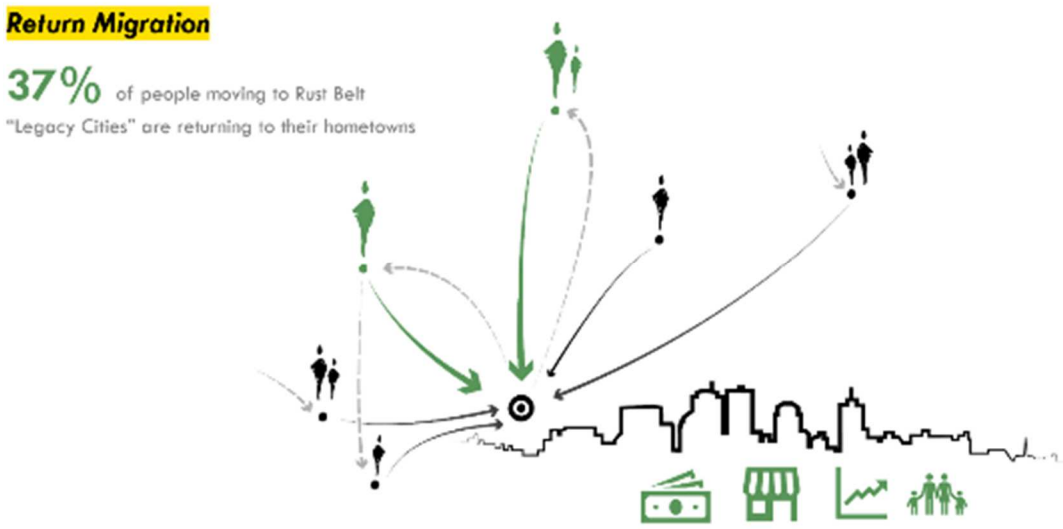

Figure 3: Migration, and factors which draw people to Dayton - Economic Opportunity, History, Family, and Cost of Living. (Source: Author)

[6] Harrison, 264.
[7] Crockett, Zachary. " Life in the Silicon Prairie: Tech's great migration to the Midwest." *The Hustle,* June 9, 2018. Accessed January 9, 2019. https://thehustle.co/life-in-the-silicon-prairie-techs-great-migration-to-the-midwest/

nationwide have also invested in modern teleworking strategies, which allows employees to relocate virtually anywhere in the United States.

In addition to increased affordability and creative economic opportunity, Ohio legacy cities have proven environmental and economic resilience. An advantage they hold over more developed economic centers is their location and reduced impact of environmental threats related to global climate change. The region proved to be less threatened by sea level rise, earthquakes, or droughts than coastal economic strongholds such as New York and Los Angeles.[8] Their proximity to major rail and highway transportation networks could allow increased population growth, provided that appropriate urban planning and policy initiatives are set in place to accommodate sustainable growth. Likewise, developments with an emphasis on walking access to neighborhood amenities, like grocery stores and community centers, can help bolster a community's growth and attractiveness to new and returning Residents.

In order to attract more economic and residential growth, local and state governments have increased the economic reinvestment in legacy cities. Ohio has aggressively marketed tax benefits and funding for startup businesses, resulting in a record-breaking number of new businesses established in Ohio over the past eight years.[9] The centralization of new, innovative businesses has led to increased economic and reinvestment opportunities in the state. This reinvestment has led to innovative and creative urban development, and promoted the rediscovery of historic narratives.

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[8] American Assembly. "Legacy Cities".

[9] Ohio Secretary of State. "Secretary Husted: Ohio Reaches A Record High For New Business Growth In 2017." *Ohio Secretary of State Office.* Published January 18,2018. Accessed January 9, 2019. https://www.sos.state.oh.us/media-center/press-releases/2018/2018-01-18/#gref

However, as Dr. Harrison noted, much of the analysis associated with exactly *why* these trends are occurring often disregarded the importance of the characteristics of place.

1.1 Rediscovering 'Legacy' and Place Character in Dayton

Dr. Harrison conducted a significant 2017 study which focused on young professionals returning to Youngstown, Ohio, a post-industrial city located along a major American transportation corridor. Like many legacy cities, Youngstown was built upon a single industry– American-produced steel. Once this industry began to dwindle, so too did the population density. Dr. Harrison's personal interviews with young Americans returning to their hometown – which she referred to as 'boomerangers' - showed that "social and economic explanations for migration decisions themselves, are rooted in notions of place."[10] Her research highlighted the importance of *place character* in the determination of where people choose to live or work.

Of course, the emergence of this trend raised several important inquiries into what constituted the primary elements of the character of legacy cities, which attract new and returning residents. The Greater Ohio Policy Center (GOPC) has emerged as the state's leading organization advocating for the regrowth of Ohio's 'most important' places. The Center's policy research has discovered that nearly eighty-five percent of Ohio's entire gross domestic product (GDP) is produced in the metropolitan

[10] Harrison, 264.

economies. They have further narrowed that figure, in that one-third of the state's GDP is produced in smaller legacy cities with populations of less than three-hundred thousand (300,000).[11] This surprisingly large figure backed up the GOPC's argument that these cities are important in the present-day economy, and will continue to be relevant in the future. Therefore, they are indeed worthy of strengthened economic reinvestment and policy support on a local, federal, and state level.

Place character, therefore, became incredibly important when considering the future of Ohio's legacy cities. The American Assembly defines a few key elements present in these cities. Factors in Ohio's legacy cities are physical and financial 'assets' such as sports teams, cultural institutions, nationally-ranked colleges and universities,

Figure 4: Ohio Legacy Cities with Populations of <300,000 (Graphic: Author, Source: GOPC)

[11] GOPC, "Legacy City Regrowth." Accessed June 24, 2018.

and diverse transportation networks. Several Fortune 500 businesses have chosen to make Ohio the site for their headquarters, such as Nationwide Insurance (Columbus) and Procter and Gamble (Cincinnati). The United States Air Force operates a major inland installation, Wright-Patterson Air Force Base, in the smaller legacy city of Dayton. The USAF also operates the National Museum of the Air Force in Dayton, which is the world's largest military museum. A rich historic network of federal and state parks and sites have allowed for the development of a strong tourism industry. These factors led to the development a rich, if underrated, network of cultural and financial opportunities within the State of Ohio.

In fact, the historic fabric of Ohio's legacy cities may be one of the strongest elements contributing to their *place character*. The American Assembly shared key insights into what elements of history has become so appealing:

> "Legacy cities have traditional walkable neighborhoods, beautiful historic buildings, and a range of civic institutions—from museums and performance venues to parks and public markets—that enrich the lives of city and regional residents…They have a resonant historic narrative of immigrants and migrants who share a common quest for freedom, economic opportunity, and better lives for their families."[9]

This important consideration has been backed up by other real estate and preservation studies in the United States, who have concluded that young Americans are looking for places with deep connections to their heritage. The National Trust for Historic Preservation (NTHP) conducted a survey of young Americans born between the years of 1980 and 2000, known as the 'Millennial' generation. Through this survey, the NTHP was able to determine that many millennials are drawn to places that have successfully preserved the historical character of their commercial and residential

places.[12] The survey proved that a majority of younger adults are searching for places which have preserved their history and character, while creating new economic opportunities for retail and commercial outlets. This and other research efforts have justified state efforts to invest in historic preservation and adaptive reuse projects across Ohio.

An additional character-defining element of Ohio's legacy cities is the emergence of thriving, local communities. Neighborhoods like Over-the-Rhine in Cincinnati have successfully rehabilitated abandoned historic properties and invested in new public amenities, creating new social places for use and enjoyment by both residents and tourists. While these areas struggled to balance the negative effects of gentrification, there is no question that the rehabilitation of historic neighborhoods added a new level of pride in the community. The NTHP's study also explored the importance of 'authentic experiences'- the idea that locally-crafted foods, goods, music, and art are of more value than those that are mass-produced hundreds of miles away.[13] These authentic experiences are an integral part of a historic community, and this trend has continued to spur innovative economic development in the urban neighborhoods of legacy cities.

1.2 The Revival of America's 'Third Places'

[12] NTHP, "Millennials and Historic Preservation: A Deep Dive Into Attitudes and Values." June 18, 2017. Accessed June 24, 2018.
[13] NTHP, "Millennials and Historic Preservation: A Deep Dive Into Attitudes and Values."

One of the most important aspects of the revival of urban legacy neighborhoods is the existence and revitalization of informal, public places in which residents can gather, unwind, and socialize with one another. Sociologist and author Ray Oldenburg defined a community as encompassing three 'places': The first, which defines informal, private life, was the home. The second, which defines formal, public life, was the workplace, school, or university. These 'second places' are where people spend the majority of their lives, yet along with them come a set of professional expectations and unspoken social regulations. The 'Third Place', as defined by Oldenburg, is any type of gathering space which supports an informal, public life. These places have many intrinsic purposes, the primary of which was to 'unify the neighborhood.'[14] These spaces included local cafes, taverns, bookstores, barbershops, hair salons, breweries, and any other gathering place which formed the 'heart' of the community.

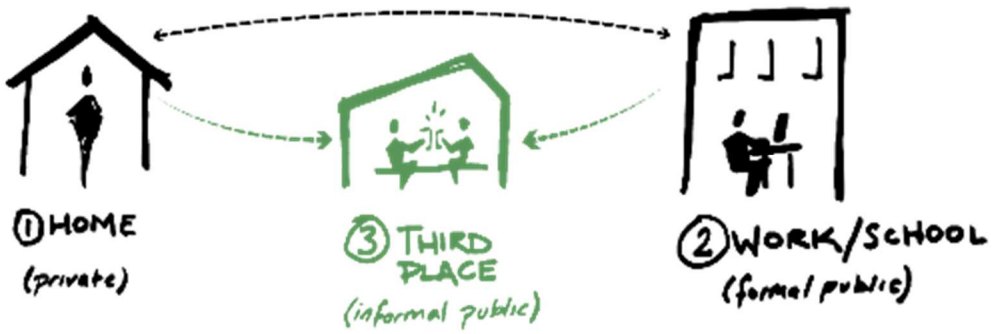

Figure 5: Third Places as Centers of the Community (Source: Author)

[14] Oldenburg, Ray. *The Great Good Place."* Philadelphia: De Capo Press, 1999. Xvii.

Oldenburg shared that a key strength of third places were that they remained local and informal, creating a place to grow and enjoy companionship outside of the workplace or home. Their location was typically centralized within a community, and more often than not are places where new residents can be 'assimilated' into a community's social structure. Oldenburg summed up the defining features of these third places as being informal, inclusive, and local. In urban neighborhoods, these spaces are critical to the health and vitality of a community. They serve to connect residents, and to give them a cohesive social life. Third places are one of the key defining features of the place character of a neighborhood – in essence, these social places *are* the true representation of a community's social identity.

However, along with the deindustrialization of America came a radical change in how America lived. The rise of suburban living, with entire neighborhoods constructed without informal public spaces like cafes or shops, had the unexpected effect of alienation of residents, and the elimination of the Third Place's opportunity for 'social relaxation.[15] Suburban dependence on the automobile added more separation between places, which disenfranchised residents without access to their own personal vehicles. A lack of an informal public life has led to the prevalence of unrealistic expectations of work and domestic communities, which are not structured to provide this necessary social support that informal public life required. Oldenburg claimed that the deterioration of third places in America led to a rise in stress and lost productivity, and unhealthy domestic relationships for both couple and family life. The continuous

[15] Oldenburg, 9.

cycle of work and home life, with no interruption or 'escape', contributed to this rise in Americans reporting stress-related health problems.[16]

A positive side effect of return migration is the revival of these neighborhood third places. In Ohio, adaptive reuse projects have become more popular as new residents return to post-industrial neighborhoods. The increased desire of younger professionals to find neighborhoods with rich historic character and strong local authenticity have led to the revival and diversification of the 'Third Place' in America. These places form the heart of a neighborhood's *place character*, and will continue to do so as urban communities increase in growth. Ohio's legacy cities have an increased responsibility to foster the growth of these businesses, as they directly contribute to the health and appeal for those urban migrants seeking new opportunities in Ohio. However, emphasis should be placed on the preservation of character, diversity, and affordability – revival should not come at the cost of people already living within urban communities.

1.3 Emergence of the Craft Brewery as a Modern Third Place

In 1957, journalist Max Lerner mused about whether America's smaller cities would be able to create a new community in the post-industrial period.[17] This period was the most accelerated period of disintegration of legacy city economies and industries. Many urban theorists grappled with the same concerns, and the progression

[16] American Psychological Association survey, 2007.
[17] Oldenburg, 3.

of deterioration in the latter half of the 20th century only continued to exacerbate these concerns. Luckily, present development trends may have proven that these legacy cities are in fact capable of this type of urban renaissance, with the introduction of new types of third places. Prominent examples of the rise of the modern Third Place include the popularity of Taiwanese *bōbà nǎichá* (bubble) tea parlors in the United States, the revived popularity of American coffee shops, and the rise of the craft brewing industry.

Craft brewing has become an influential economic powerhouse in the United States. Though it has been less than fifty years since the first craft brewery opened in California in 1969, the industry has already contributed twenty-six billion dollars to the national economy.[18] The difference in craft beer's economic impact over larger, macro-brewing operations is that the dollars generally are reinvested back into their community of origin.

Craft breweries were developed as smaller operations, usually with one location central to a community. Their identity is inherently linked into the tangible and intangible heritage of place. Professor Travis Bell at Florida State University writes that breweries are successful when they integrate the community's history into their own identity, because the "proper use of cultural heritage can influence visitation of craft breweries with connection to local community."[19]

By embracing local identity, breweries have established themselves as centers of informal public life in the 21st century. An article published by *Smithsonian*

[18] Brewer's Association. "National Beer Sales & Production Data." Accessed June 24, 2018.
[19] Bell, Travis R. "What's in a Name? Cultural Heritage and Naming Praxis in Tampa Bay Craft Breweries." In Tyma, 2017. 97.

Magazine in late 2017 highlighted Ray Oldenburg's work in *The Great Good Place*. The article agreed with Oldenburg's position about the importance of third places, and pointed out that craft breweries "are the evening analog to the third place of the morning, the coffeehouse."[20] The author conducted interviews with craft brewery owners across the country, and found common trends of social inclusivity, charitability, and collaboration at these informal community hubs. They have become more than just spaces in which to enjoy crafted beverages; craft breweries often incorporate other social activities, such as yoga, musical acts, sports parties, board games, trivia, and regional-specific events. Many brewers interviewed for the article also discussed attempting to make these spaces more inclusive, offering products or food selections for families with children or pets, as well as craft beverages which are inclusive for non-alcohol drinkers who still desire the social spaces which breweries provide. These aspects have helped craft breweries become a shining example of the modern Third Place. Brewing businesses have successfully contributed to the *place character* of their neighborhoods, and have in many cases contributed to the successful rehabilitation of historic districts around the country. *Smithsonian* journalist Morrison wrote that "craft breweries can be engines of neighborhood revitalization, often in industrial areas that have fallen into disuse."[21] In Ohio's post-industrial legacy cities, craft breweries are providing the integral community spaces sought by Lerner and Oldenburg. Craft

[20] Morrison, Jim. "Are Craft Breweries the Next Coffeehouses?" *Smithsonian Magazine*, September 2017. Accessed May 16, 2018.
[21] Morrison, Jim. 5.

brewing has positively embraced Oldenburg's categorical description of Third Places as informal, inclusive, and local.

Ultimately, as legacy cities searched for innovative and economically viable uses for abandoned industrial sites, craft brewing emerged as a compelling, diverse, and appealing design intervention. Though the effects of craft brewing were not seriously considered until the past decade, evidence suggests these industrial hubs have the immense potential to serve their communities for years to come.

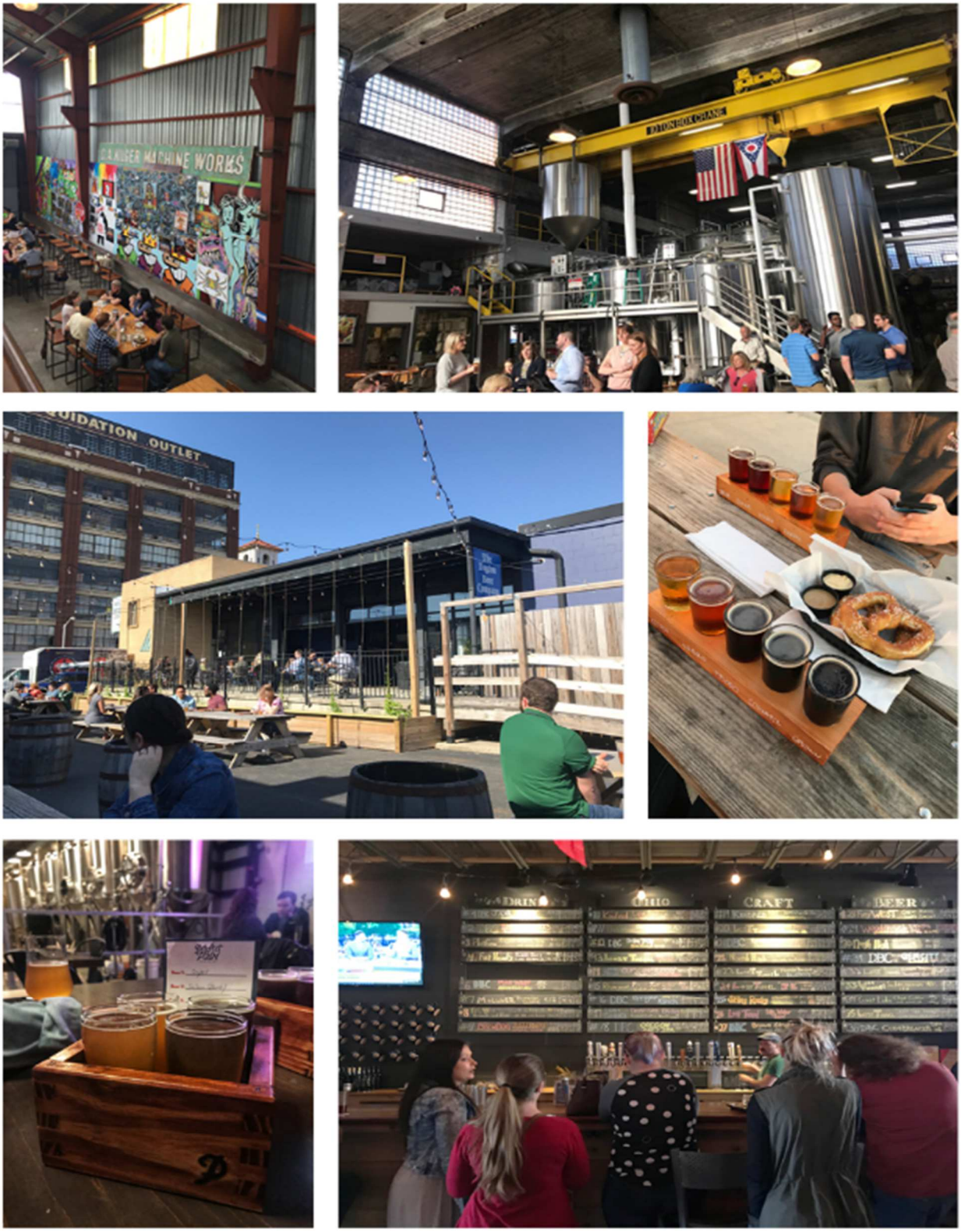

Figure 6: Breweries as Shared Community Hubs (Source: Author)

Chapter 2: Dayton - A Legacy City of Innovation

"If I were a giving a young man advice as to how he might succeed in life, I would say to him, pick out a good father and mother, ***and begin life in Ohio****."*

– Wilbur Wright (ca. 1910)

Dayton, Ohio, was founded as a small working-class settlement, situated at a bend in the Great Miami River at a point where five major waterways converged. These waterways connected Dayton to the major trade routes of Cincinnati, one of the most important commercial towns of a post-revolutionary United States. Dayton, now classified as small Ohio Legacy City, was key to some of the most important technological advancements in American history.[22]

2.1 Evolution of the City of Dayton

In 1787, John Cleves Symmes purchased a tract of land from the United States Government comprised of around 330,000 acres of land between the Greater and Little Miami Rivers. The land, known as both the Symmes and the Miami Purchase, was located in the Northwest Territory. Provisions outlined in the Northwest Ordinance required Symmes to set aside portions of the Purchase for a school, religious institutions, government facilities, and a university. Mr. Symmes disregarded all of these land use requirements, and his associates chose not to comply with the existing federal survey system.[23] Settlers who flocked to the region purchased their land from Symmes and his associates, but the lack of adherence to the survey system caused

[22] Greater Ohio Policy Center, "Advocating for Legacy Cities." Accessed June 24, 2018.
[23] Ohio History Central. "Symmes Purchase". Accessed March 30, 2018

serious errors in parcel locations. Following the purchase, the City of Cincinnati was founded by Symmes and his associates in 1788. Once the city was established, more settlers moved out and settled what would become Dayton to the north, in 1797. The cities were both platted by the same surveyor, Colonel Israel Ludlow. Dayton was named after General Jonathon Dayton, who fought with the Marquis de Lafayette during the American Revolution and who signed the U.S. Constitution.[24]

The plan of Dayton was oriented towards the Northwest, framed by the bend in the Greater Miami River. As in the design of Cincinnati, Ludlow utilized a Roman Castrum-inspired plan. The main corridor developed on the *decumanis* as Third Street, which extended beyond the boundaries of the Miami. Third Street was oriented approximately parallel to the mouth of Wolf Creek, which joined at the bend of the Miami River. Main Street formed the north-south oriented *cardo,* which ran directly perpendicular to Third Street (depicted in Figure 7). The rigid organization of the street grid allowed Dayton to grow in a rational, linear fashion. Commerce began to expand out from the center of the city along Third and Main streets.[25]

As Dayton grew, the discrepancies between survey systems caused a major problem with land ownership. Unfortunately, the land where Dayton was established did not actually belong to the Symmes Purchase. Thus, property owners who purchased illegitimate parcels from Symmes had to purchase the land a second time from the true

[24] Conover, Charlotte Reeve, and Greater Dayton Association. *The Story of Dayton.* Dayton, Ohio: Greater Dayton Association, 1917.
[25] Higgins, J. S, et al. *Titus' map of Montgomery County, Ohio*. Philadelphia: C. O. Titus. Philadelphia.: F. Bourquin, 1869.

property owners.[26] The controversy of ownership caused such a stir that the United States changed the land sale process entirely for future territories West of the Mississippi River. Beyond problems with property ownership, Dayton also struggled with flooding concerns. The City reportedly "flooded a number of times in its early years."[27] Despite the larger issues, Dayton was able to stay afloat, but the city's growth

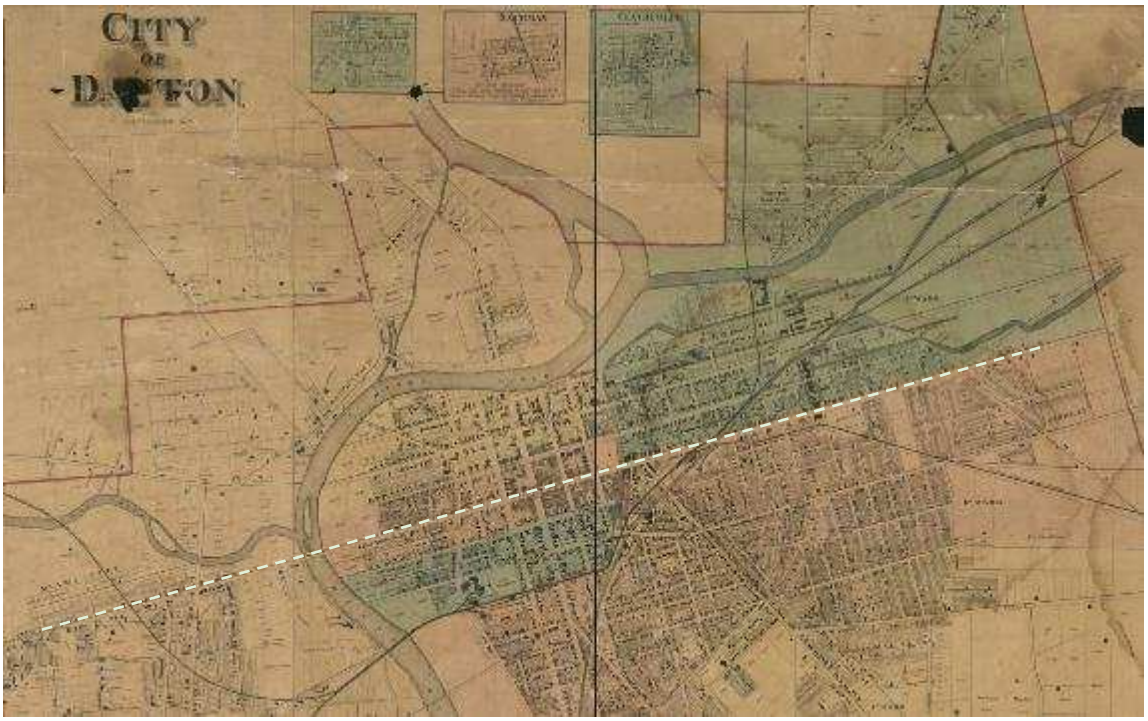

Figure 7: 1869 Titus' Map of Montgomery Count, showing the prominence of Third Street for the City's Development. (Source: Library of Congress)

rate lagged behind Cincinnati for a number of years.

Eventually, the population in the Northwest Territory had grown enough to the point where residents began to desire incorporation as a State. When Ohio's Constitutional Convention submitted their Constitution for congressional approval,

[26] Ohio History Central. "Symmes Purchase". Accessed March 30, 2018
[27] Ohio History Central. "Dayton, Ohio". Accessed March 30, 2018

President Thomas Jefferson voiced his support in favor of allowing Ohio to join the young nation. Jefferson's endorsement bolstered Ohio's support in the Senate and the House of Representatives. By 1803, Congress voted to allow Ohio to become the seventeenth state in the United States of America.[28] Once the state was admitted to the union, the territory was divided into counties. Dayton was established as the seat of Montgomery County, but the designation did not initially affect Dayton's growth. A turning point for Dayton was the onset of the War of 1812, as Dayton was a convenient staging point for the U.S. to move troops north into Canadian territory."[29] Industrial businesses took off in the City. Once the Miami and Erie Canal was constructed in 1829, Dayton was directly linked to Cincinnati, providing improved trade routes between the two Ohio cities. Construction was also completed on nine separate railways that connected Dayton to other areas of Ohio, which greatly increased its position as a trade crossroads in Ohio.[30] These rail lines also connected Dayton's economy to other cities and regions like Indianapolis, Columbus, Chicago, and the East Coast. Just thirty years after Ohio was established, Dayton was considered "one of the largest and wealthiest communities" in the State.[31]

Dayton's growth mirrored the economic growth of Cincinnati, whose industrial and cultural influence had earned it the moniker "Queen of the West." An increased focus on industry and innovative business activities catapulted Dayton to the forefront

[28] Ohio History Central. "Ohio Statehood." Accessed March 30, 2018
[29] Ohio History Central. "Dayton, Ohio."
[30] Wright, Nathalie. "Historic Context." Ohio History Central, 23.
[31] Ohio History Central. "Dayton, Ohio."

of Ohio's economy. In fact, this economic prominence earned Dayton its very own moniker. In 1845, the *Cincinnati Chronicle* published an article which sung the praises of Dayton:

> The most indifferent observer will not fail to notice Dayton. The wide streets, kept in excellent order, the noble blocks of stores, filled with choice and, of course, cheap goods, and more than all, the exceeding beauty and neatness of the dwellings, you at once mark with a 'white stone,' It may fairly be said, without infringing on the rights of others that Dayton is the gem of all our interior towns. It possesses wealth, refinement, enterprise, and a beautiful country, beautifully developed.[32]

The nickname "the Gem City" eventually caught on by the late 1800's; by then, Dayton was known nationwide for superior products such as, but not limited to cigars, bicycles, cash registers, printed publications, and farm equipment.[33] The city's growth gathered momentum into the turn of the 20th century, even as Cincinnati's growth seemed to slow. Dayton became respected worldwide for its legacy of innovation and manufacturing prowess. A city of just 383 people in 1810, Dayton had since grown to a population of 85,000 by the turn of the 20th century.[34]

2.2 Industrial Development and Innovation

Dayton's success resided in its rich innovative industrial development. The Heritage Center of Dayton Manufacturing & Entrepreneurship summarizes that success best, noting

> By the turn of the century, Dayton had more patents, per capita, than any U.S. city, and one-sixth of the nation's corporate executives had spent a portion of their career at legendary Dayton company National Cash Register (NCR). Beginning in the mid-1800s, Dayton established itself as a center of manufacturing and entrepreneurship. Companies such as NCR, the Barney & Smith Car Company, McCall's Publishing,

[32] Young, Riz. "Is it a Real Gem?" Accessed March 30, 2018.
[33] Ohio History Central, "Dayton, Ohio."
[34] Wright, Nathalie. "Historic Context," 24.

> DELCO, the Wright Company, and the Huffy Corporation set Dayton apart in innovation and forward thinking.[35]

Innovative manufacturing programs borne out of the Industrial Revolution allowed the business owners of Dayton to position the city as a leader of the American economic landscape. Continued growth of industry in the region caused Dayton to expand past its natural boundary of the Greater Miami River. The 'Titus' Map of 1869 depicts the major growth of the city's business districts along the Third Street Corridor (Figure 8). As the city grew, it engaged with the 'City Beautiful' movement happening across the United States. Dayton touted the local "pioneers in the ornamentation of factory building and grounds in the promotion of city beautification."[36] Not only was Dayton a leader in industry, they were also a leader in creating industrial architecture of high regard.

With the increase in land area, buildings, and amenities incorporated by the city, demand on Dayton's infrastructure also grew. Local transit networks were expanded as residents needed to commute to their jobs. The Third Street corridor received the first expansion of public transit with the operation of a nearly four-mile, horse-drawn streetcar that allowed for the annexation of what would eventually become the West Site Colony, and still later the Wright-Dunbar Village.[37] The horse-drawn streetcar was quickly followed by the creation of four other streetcar lines, which allowed residential

[35] Carillion Historical Park. "Heritage Center of Dayton Manufacturing & Entrepreneurship." Accessed March 30, 2018.
[36] Dayton Chamber of Commerce. *Dayton: Birthplace of the Airplane and the Nation's Center of Aviation (Pictures, Maps, Statistics)* 1923.
[37] National Park Service, "Wright-Dunbar Village."

development to spread out into an official suburb of downtown Dayton, named Miami City.[38] The network eventually was upgraded to full rail streetcars, which allowed industrial facilities to move from the core of Dayton into the outer suburbs and rural neighborhoods. Dayton had the rail connectivity that other cities in the region lacked. The National Park Service suggests that it was this public transit access that positioned the Third Street Corridor as a pivotal expansion of Dayton's commercial districts.[39]

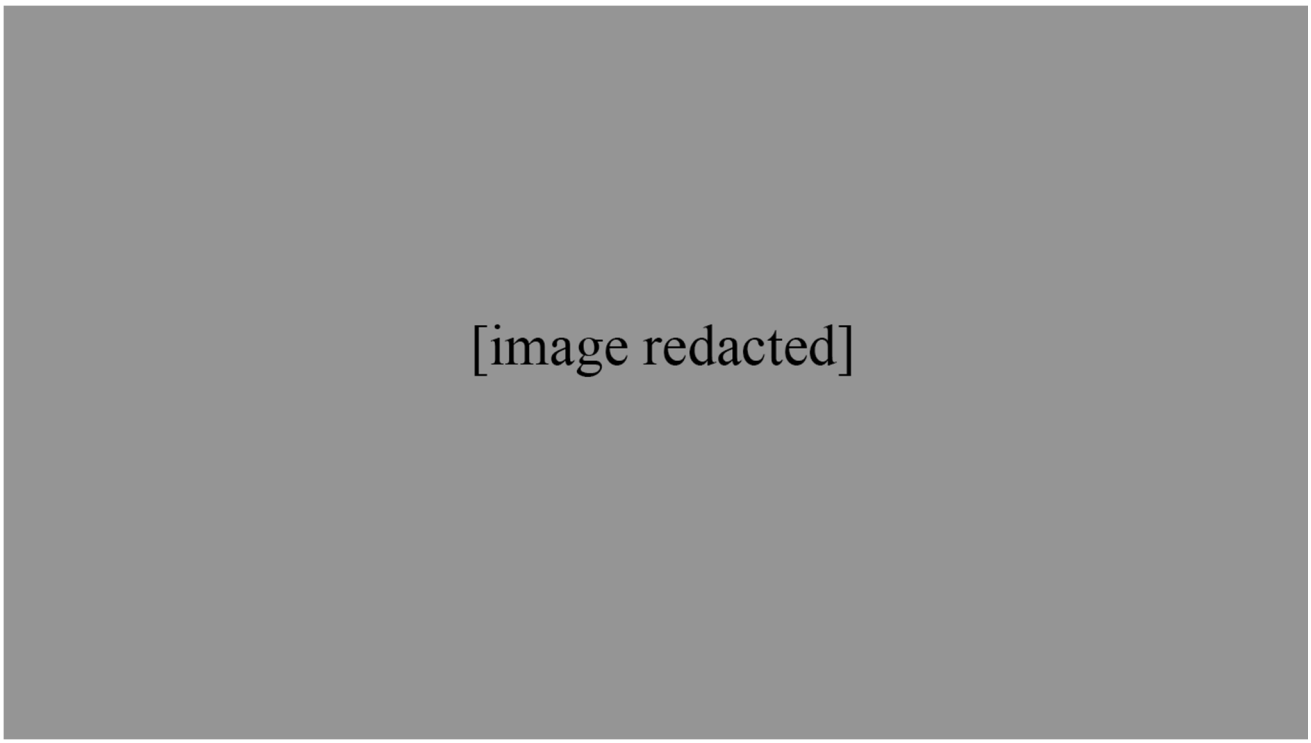

Figure 8: 1923 Transit Map of Dayton, highlighting the Third Street Corridor, shown in red as the National Pike. (Source: Dayton History Books Online)

[38] Higgins, J. S., et al. *Titus' map of Montgomery County, Ohio*. 1869.
[39] National Park Service, "Wright-Dunbar Village."

One of the most serious issues facing Dayton's industrial and architectural development was the increased flood risk due to the regional convergence of five waterways. The addition of the Miami & Erie Canal exacerbated a city constructed directly on a flood plain, and three of the five waterways ran directly through the city center.[40] The city flooded several times in the early years, but no flood was more devastating than the Flood of 1913. The so-called Great Flood is widely regarded as the most serious natural disaster in the state's history. The Flood "caused a significant loss of life and property in Dayton and temporarily halted the city's growth,"[41] setting the city's urban development further behind other major Ohio cities. Ohio's historical records indicated millions of dollars of damage to the city's infrastructure, and hundreds of Dayton residents lost their lives. Motion picture was a relatively new technology at the time of the Great Flood, and there are surviving copies of film which documented the devastation of the disaster. In most cases, still photography was utilized to document the catastrophic damage, as well as showcase rescue and recovery efforts.

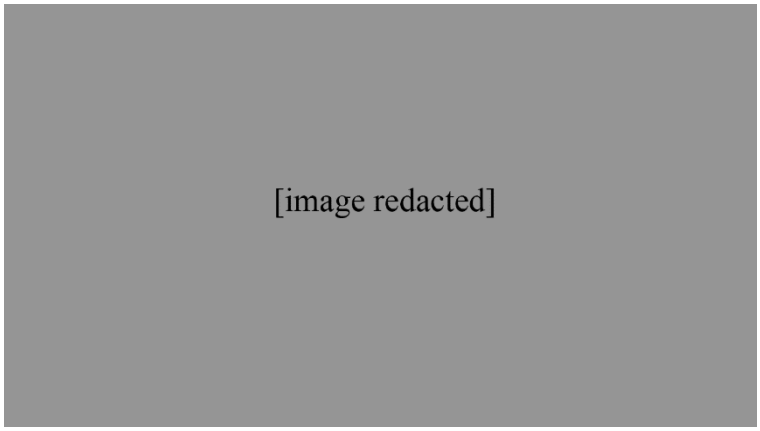

Figure 9: Still Frame; Traversing Dayton during the Great Flood was no easy feat (Video Source: University of Dayton Archives)

[40] Nathalie Wright, "Historic Context," 28.
[41] Ohio History Central, "Dayton, Ohio."

As the city recovered, local and state organizations partnered in order to prevent future disasters like the Flood of 1913. According to tourism materials of the era, Dayton constructed "one of the world's largest water prevention projects," which included five dams with reservoirs situated along the surrounding waterways.[42] The promotion of advanced flood control tactics in Dayton highlighted a city that was willing to take on any challenge, and had the innovative spirit needed to approach responsible urban growth.

By the turn of the 20th century, the city's impressive array of manufacturing facilities, business strongholds, cultural institutions, and transportation options cemented Dayton's place in American economic networks. However, no resident of Dayton could have predicted how two young men, one fresh from rural Indiana, would change the entire landscape of the region – and the world.

2.3 The Wright-Dunbar Legacy

Figure 10: Orville Wright, Wilbur Wright, and Paul L. Dunbar
(Source: Wright Brothers Aeroplane Company & Ohio History Central)

[42] Dayton Chamber of Commerce. *Dayton: Birthplace of the Airplane and the Nation's Center of Aviation (Pictures, Maps, Statistics)* 1923.

No history of Dayton is completed without mention of the most internationally recognized achievement of the city's industry: aviation. The Wright Brothers lived within the Miami City suburb of Dayton, along the thriving West Third Street business corridor. The Brothers lived with the rest of the Wright family at 7 Hawthorn Street, which was a single-family Queen Anne style home situated in the middle of the working-class neighborhood.

The Wright Brothers are credited as the fathers of the modern American aviation industry, bringing aviation manufacturing and military support to the greater Dayton region. The Brother's achievements in flight directly led to the advancement of American military aviation, and eventual creation of the United States Air Force. Through their entrepreneurial empire, the Wright Brothers undeniably left their architectural mark on the city via their business and manufacturing endeavors. Just two decades following the Brother's first flight in Kitty Hawk, the city of Dayton already touted itself as "the Birthplace of Aviation;" and this moniker has prevailed into present day discourse and advertisement.[43] The state of Ohio is inherently proud of its aviation heritage, utilizing the moniker on publications, license plates, merchandise, and more. The Air Force retains a strong presence in the Dayton Area, with Wright-Patterson Air Force Base operating just seven miles from the city center. There, they maintain the Wright's small Huffman Airfield as a historical park, and have established the National Museum of the Air Force– positioning Dayton as a hub for aviation heritage tourism in the United States.

[43] *Birthplace of the Airplane and the Nation's Center of Aviation (Pictures, Maps, Statistics)* 1923.

Despite the eventual global fame that the pair of brothers achieved, their influential contemporaries and friends were often glossed over in public discourse in the following century. Likewise, story of the broader business network which the Wright Brothers created is often lost in favor of the more recognized aviation narrative. Creation of the Wright-Dunbar Historic District commemorated the neighborhood which bore witness to the full development of the Wright's professional lives, from the print shop to the airplane factory. This important designation allowed for Dayton to have a district to interpret the Wright Brother's history. However, the name of the district itself also commemorated another important, if underrepresented figure in Dayton's social and cultural history. Paul Laurence Dunbar, the influential African American poet, was a classmate of Orville Wright. His early work with the Wright Brothers' printing business helped to launch Dunbar's career. Meanwhile, success in the print shop allowed the Wright Brothers to open a more ambitious business. The brothers founded the Wright Bicycle Company in a small storefront location at 1005 W. Third Street; this bike shop was the beginning of the Wright's own legacy.

Paul Laurence Dunbar's story was an equally important facet of Dayton's history, but many Americans are not exposed to Dunbar's impact on the city and culture. The chosen name for the Park Service's interpretive facilities in the Wright-Dunbar Historic District was the "Dayton Aviation Heritage National Historical Park," but that name does not fully represent the rich, complex history of the former Miami City suburb. Designated by an act of Congress, The National Park transformed a block of storefronts which include the second of the five former Wright Cycle Company

shops, creating a large museum within the footprint of the buildings. The Park also preserved the home of Dunbar, which is located six blocks from the present museum site.

Paul Laurence Dunbar had a deep impact on American literature. He served as an inspiration for other literary figures; renowned poet Maya Angelou's poem "I Know Why the Caged Bird Sings" directly referenced one of Dunbar's own works, titled "Sympathy"[44]. Though internationally acclaimed, Dunbar faced racial disadvantages even in his Northern hometown. He struggled to find work in his early career due to his race, and eventually took work as an elevator operator in one of Dayton's established financial buildings.[45] The lack of public awareness and exposure of Dunbar's work, even within the Wright-Dunbar district, serves as one of the greatest detriments to Dayton's comprehensive identity. His own story is evidence of the larger African American literary and economic story in Dayton; yet that narrative has been misplaced in favor of elevating West Dayton's aviation ties.

Though unbalanced in the past, a future strength of the Wright-Dunbar Historic District is the potential to represent a more diverse story or history within a Legacy community. The National Park Service summarized the intertwined stories of achievement of Paul, Wilbur, and Orville as such: "These men offered the world something far greater: they offered the world hope, and the ability to take a dream and

[44] Hass, Robert. "Poet's Choice." Washington Post. May 12, 1996. Accessed May 21, 2019. https://www.washingtonpost.com/archive/entertainment/books/1996/05/12/poets-choice/ab605db5-e320-4296-99f7-95d0db5f436a/?utm_term=.fb174e9f2ae4

[45] Ohio History Central, "Paul Laurence Dunbar."

make it a reality."[46] Visible interpretation of African American and other minority sites are sorely lacking in the field of historic preservation, with the National Trust estimating that less than ten percent of the 90,000 registered sites represent minority groups or cultures. Future development in the Wright-Dunbar Historic District will need to balance the historical representation of both the Wright Brothers' and Dunbar's legacies, as the relationship between the three men has a unique place in the history of Dayton and of the United States. The elevation of suppressed or forgotten narratives remained as a key opportunity in Dayton, and could have a positive impact on a more inclusive *place character* for these urban communities.

Figure 11: Rediscovering the Hidden Characters of Dayton's Heritage. (Source: Author)

[46] Dayton Aviation Heritage. "Lives of Consequence." National Park Service. Accessed March 30, 2018. https://www.nps.gov/daav/index.htm

2.4 The Brewing Industry in Dayton

Like most of Ohio's major cities, Dayton's industrial focus included the production of beer and other alcoholic beverages, largely propagated by English and German immigrants. As in many American cities, Dayton relied on beer as a source of clean hydration, which prevented serious outbreaks of cholera and other diseases.[47] The first brewery in Dayton opened in 1810 on Main Street and was founded by an English immigrant. German immigrants soon followed suit with the Schiml Brothers opening the first lager brewery in 1852.[48]

Brewmaster Tanya Brock of Dayton's Carillon Brewing Company attributed the growth of Dayton's beer industry to plentiful water resources, good distribution networks via canal and rail, and local blue-collar workforces. These factors and networks increased demand for beer distribution in Dayton: just prior to the enactment of Prohibition, twenty-two breweries had opened in various locations around Dayton to serve the thirsty masses. Unfortunately, only a handful survived through the enactment of the 21st Amendment, and all were gradually shuttered in the passing decades. The local trends in Dayton followed the brewery industry trends of the larger United States. Consolidation of brewing in Ohio all but killed the brewery industry in Dayton – the last brewery in the city closed in 1961.[49] Macro breweries cornered the Dayton market, and held control of the Ohio beer market until the turn of the 21st century.

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[47] W Witmer, Jim. "Beer – A Taste of Dayton's Past." *Dayton Daily News,* page 1. Accessed March 30, 2018.
[48] Ibid.
[49] Ibid.

Presently, there are only five commercial microbreweries and six brewpubs in Dayton. These businesses are still extremely small, and some are located more than five miles from the city center. Warped Wing Brewing Company, founded in 2014, has secured a second taproom location proposed for the historic Dayton Arcade Project.[50] Brewmaster Brock of Carillon Brewing has attributed Ohio's low regulatory fees and increased public desire for locally-produced products to the modern resurgence in Dayton's brewing industry.[51] The Wright Brother's legacy has even infiltrated the modern craft brewing industry in Ohio. Great Lakes Brewing Company of Cleveland has produced a classic pilsner called "The Wright Pils," paying homage to the bicycles Dayton's famous pair of brothers.[52]

While Dayton has lagged behind other major Ohio cities in breweries per capita, the lack of market saturation coupled with the area's rich history of innovation and industry positions the Gem City as a strong contender for the development of new breweries that capitalize on innovative production technologies. Dayton represented the hotbed of Ohio's industrial innovation heritage. As a result, this character will allow for continuation of innovative industrial opportunities in the form of craft brewing businesses.

[50] Frolik, Cory. "Dayton Arcade could house 2nd Warped Wing, Boston Stoker, DVAC." *Dayton Daily News*, 2017. Accessed June 26, 2018.
[51] Witmer, 5.
[52] Great Lakes Brewing Company, "The Wright Pils." Accessed March 30, 2018.

Figure 12: Aerial Comparison of Dayton, 1870 - present . Note the location of the W. Third Street Bridge in both images.(Top: Library of Congress; Bottom: Google Earth)

Chapter 3: Craft Brewing: A Social Industry

"In craft beer, what was old is new again – an attempt, in both ingredients and brewing techniques, ***to return to the origins of what makes beer special****" – Simran Sethi (2015)*

The art of American brewing was nearly lost in the years following World War II. Though largely ignored through the 1960s and 1970s, the production and consumption of beer has been deeply integral to American history and culture from its earliest days. [53] Colonial reliance on beer as a safe hydration source, and the elevation of domestic brews as a symbol of American Independence left the fledging industry in a very pivotal role in a country still attempting to define its own identity. However, as the country aged, the cultural appreciation for the craft of beer itself was threated. In the latter half of the 20th century, the overarching image of American beer had developed into one of cheap, canned beers emblazoned with patriotic colors or phrases;

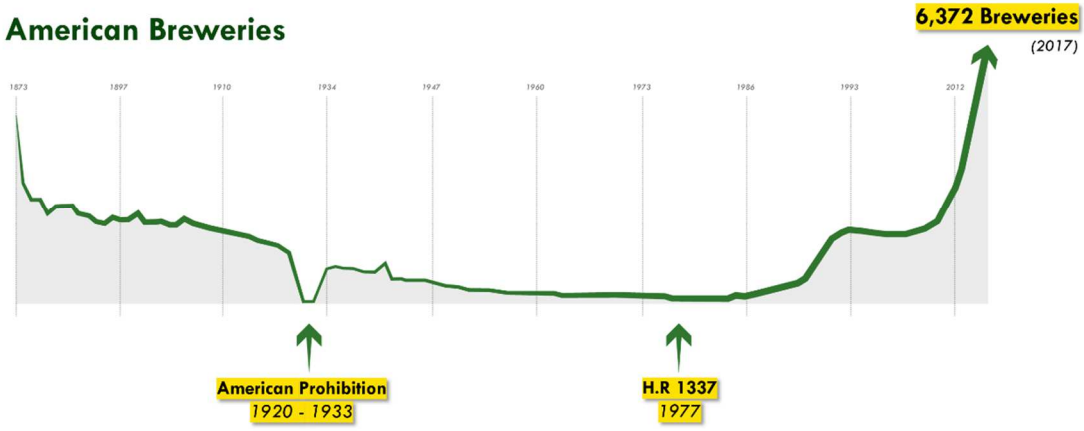

Figure 13: Number of Breweries in America, 1873-Present (Graphic: by Author; Data: BA, 2017)

[53] Refer to Appendix 1 of this document (pg XX)

primarily to be shared at sports events, cookouts, camping trips, or other outdoor activities.

Despite the industry's present attempt to recover from the effects of mass consolidation and production, the 21st century has born witness to a radical shift in America's perception of beer. Dr Adam Tyma, professor of media studies at North Dakota State University, summarizes this shift best: "Beer as signifier has moved from a casual beverage to a significant part of American cultural norms and folkways."[54] The rise of the craft beer industry since the late 1960's provided a new form of informal public spaces in urban, suburban, and rural communities. A broad survey of brewery locations in the State of Ohio alone depicted breweries located in communities of all scales and urban proximity. The country's embrace of the brewing industry has even led to a new form of tourism, driven by the countless brewery tours, festivals, conferences, and events across the country.

This popularity has placed the United States at the forefront of the global craft brewing movement, but researchers are only now exploring the nuances of so-called 'beer history,' and the impacts that these new informal, public spaces have had on urban development and culture. This chapter begins to explore the background and defining characteristics of the culture of craft brewing.

3.1 The Brewing Process: An Overview[55]

[54] Tyma, 114.
[55] Gaston, 229.
SABMiller, "Brewing Process." (Accessed March 29, 2018).

Beer itself is an inherently agricultural product. The beverage is created with four primary ingredients: water, malts (grains), yeast, and hops. In addition to these four staples, there are also additions which can be added to enhance or 'round-out' specific flavor profiles. Common additions often include fruits, nuts, spices, or additional hops, and are used to create specific *styles* of beer. The process involves nine steps, which transitions the raw agricultural ingredients into a consumable alcoholic beverage. Equipment requirements for this process dictate the traditional layout of a brewhouse space, as the brewing process is one of a linear nature. Each stage of the process occurs in a strict order, and requires individual pieces of equipment, much like an assembly line.

A critical factor in brewing is the absolute sterilization of all equipment that will come in contact with any portion of the beer product. **Sterilization** eliminates any organic material which can negatively interact with yeast and ruin the final flavor profile of the beer. Sterilization places additional requirements and allowances for the mechanical, electrical, and plumbing (MEP) systems of a brewery. Ultimately, a clear understanding of the process of brewing generally affected the success of the layout and programming of brewery spaces.

Figure 14: Integral Ingredients of Craft Beer and Optional Additions to enhance flavor profiles (source: author)

1. **Grain Preparation** - A brewer takes different types of malt, like wheat or barley, and dries them. The heat used in the drying process roasts the grains, similar to how coffee beans are roasted. The darkness of the grain generally determines the color and flavor profile of the beer – lighter ales are made with lightly dried grains, while darker stouts or porters are crafted with heavily dried

and roasted grains. The mixture used also varies depending on the style of beer being produced.

2. **Milling** – Dried malt mixtures are milled into *grist*, which allows water to penetrate the outer casing of the grains. This allows sugars to be released, which yeast can digest into alcohol and CO_2.
3. **Mashing** – Grist is moved into a piece of equipment known as a *mash tun (vessel)*. Hot water is added to the mix, which creates a slurry known as mash. *Mash* has the rough consistency of mashed potatoes. Mashing releases the sugars from the grist.
4. **Lautering** – Mash is moved into another piece of equipment, called the *lauter tun*. The liquid portion of mash contains the sugars which are released by the saturated grains. However, the solid pieces of grains are undesirable for the brewing process, as they can contaminate the final brew. These solids are removed and discarded or reused in other applications, like baking or animal feed. The process of Lautering produces *wort*, the basis for every style of beer. Adding hot water allows the brewer to save all wort produced in the lautering process.
5. **Boiling** – Wort is brought to a steady boil, which kills any bacteria or yeast that may have carried over from previous stages. Ohio brewer Tom Ayers emphasized that boiling is "critical to creating a clean and delicious beer."[56] At

[56] Ayers, Tom. "Understanding the Boil." Accessed March 29, 2018.

this stage, hops are added to the mixture. Like in many stages, the style of beer determines the length of the boil and the type or weight of hops used.

6. **Wort Separation/Cooling** – The heated wort mixture is separated into a piece of equipment called the *whirlpool* in order to separate any remaining solid particles left from the grist, leaving behind a clean liquid. The liquid is cooled.
7. **Fermentation** – the cooled liquid is transferred to a *fermentation vessel*. The style again determines the final temperature of the mixture. Once the desired temperature is reached, the brewer will then add yeast cultures that are extremely specific to the style of beer being produced. The yeast gradually digests the sugars present into *alcohol* and *carbon dioxide*, which give beer its unique qualities.
8. **Maturation** – The liquid is still considered underdeveloped at this point and is often referred to as '*green'* beer. The 'green' beer mixture is transferred again into another tank, which allows the beer to develop a full flavor profile. The length of maturation depends on the style, and there are some styles which need no maturation process.
9. **Conditioning** - At the end of the maturation process, the beer is filtered and carbonated, which gives the beer a smooth and effervescent finish. The mature beer is then transferred into a chilled conditioning tank, referred to as a *bright tank.* At this final stage of the brewing process, beer product is stored (*cellared)* for several weeks to finish maturing. Following the cellar process, the finished beer is ready to be sold to the consumer. Brewer Reed. Odeneal of Perfect Plain

Brewing shared that in daily operations, a brewery's capacity is often dictated by the amount of equipment available for beer conditioning.

Once the beer has been conditioned, there are two options the brewer can take to sell their product. One option is that the beer be sold directly to the consumer, through the brewery's tap room, tasting room, or associated brewpub. This direct system allows the beer to remain within the facility in which it was brewed, eliminating the resources and energy needed to distribute the product. This is a popular option for most American brewers, but some states have established restrictions on the direct sale of beer from a brewer to the consumer. In these states, some brewers must sell their product to a distributor, who then sells the product back to the brewer for on-site distribution. The other option is for the beer to be packaged, in either kegs, bottles, or cans. As in the brewing process, any packaging that comes in contact with the beer must be fully sanitized in order to maintain the quality and safety of the finished product. Packaged beer can be sold via any of the three sales methods employed by the brewer: direct, two-tier, or three-tier systems.[57]

3.2 Craft Brewing Standards in the United States

Craft brewing in America has become a nuanced, complex field, with many different type and sizes of breweries in every state in the nation. There are several national organizations which exist to assist brewers in the United States, but the most well-known and impactful is the Brewers Association (BA), founded in 1979. The non-

[57] This document, page 18.

profit special interest organization "of brewers, for brewers, and by brewers" was created to advance the craft brewery industry, and to encourage the community of breweries and beer enthusiasts.[58] The Brewers Association connects brewery owners, home-brewers, retailers, and craft beer connoisseurs in order to promote the social culture of craft brewing. As a national organization, the Brewers Association operates as an advocacy group with political and economic influence. The BA provides regular updates on legislative issues across America, and steps in to lobby when states promote legislation that can hurt the craft beer industry. They provide important legal guidance for American brewers and maintain financial research and historical statistics to remain stewards of America's brewing history. By publishing industry-recognized Best Practice, Safety, Sustainability and Quality standards, the Brewer's Association remains a powerful force in the craft brewery industry.[59] They provide certifications for independent breweries and are responsible for much of the industry-specific regulation that occurs in the United States. **As a result, the standards and definitions laid out by the Brewers Association remain crucial for the design, development, and operation of new breweries across America.** Additionally, most states have their own associations which assist brewers, local residents, and tourists alike to connect. While helpful, these local organizations do not have the same standardization or regulatory influence that the national Brewers Association carries in the United States.

Overall, the standard definitions and guidelines provided by the Brewers Association are utilized when defining and describing breweries and beer in the United

[58] Brewers Association. "Purpose." (Accessed March 25, 2018)
[59] Brewers Association. *Best Practices Documents.* (Accessed March 18, 2018).

States. Some of the most important and pertinent of these relate to the definition of craft beer. According to the Association, **American craft breweries are "small, independent, and traditional**."[60] To qualify as a craft brewery, a business's annual production must total 6 million barrels or less of beer. This annual volume translates into nearly 1.5 billion pints of beer. This figure accounts for roughly three percent of all annual beer sales in the United States. To be considered independent, the business must be owned or controlled by less than 25 percent of a "beverage alcohol industry member which is not itself a craft brewer".[61] By limiting this number, the Brewers Association prevents larger companies like Anheuser-Busch InBev from purchasing small operations and marketing them as craft breweries in a way that is deceptive to the American public. To qualify as a traditional brewery, the beer produced must "derive from traditional or innovative brewing ingredients and fermentation." This standard promotes the use of experimental ingredients and innovation in the field, while also allowing for the interpretation and preservation of traditional styles like a German *Kölsch* or an English *porter*. The Association does not consider 'Flavored Malt Beverages' (FMBS) as beer. FMBs are fermented beverages like hard sodas, ciders, meads, which are crafted from malts but do not typically include ingredients like barley. The distinction has allowed for the development of sister craft cider and meadery industries, separate from the classifications and standards of craft breweries. Ultimately, a goal of the Brewers Association is to promote craft breweries that

[60] Brewers Association. "Craft Brewer Defined." (Accessed March 25, 2018)
[61] Ibid.

"maintain integrity by what they brew and their general independence, free from a substantial interest by a non-craft brewer."[62]

The Brewers Association classifies craft breweries through Industry Market Segments, which are aligned by production volume and business type. In the beer industry, most market data are provided in terms of the barrel. While most beer today is brewed using to modern brewing equipment, the use of a barrel as a standard for volume measurement has carried through the earliest days of the global brewery industry. According to Title 26 of the United States Internal Revenue Code, section 5051**,** the modern American beer barrel is **legally defined as 31 U.S. Gallons.** One U.S. gallon holds 8 fluid pints, which is the standard draft serving size in U.S. breweries.[63]

The smallest segment of the craft beer industry recognized by the Brewers Association is the **microbrewery,** which is a brewery that produces less than 15,000 barrels of beer per year. That production volume translates to nearly 4 million pints of beer a year. The Brewers Association requires Microbreweries to sell 75% or more of their beer off-site, at other brewpubs, bars, or venues. This market segment includes businesses referred to as "*nano breweries*," which is a popular, yet non-technical term employed to define the smallest breweries in the American market.

The next segment of the craft beer market is the **brewpub**, which operates as both a restaurant and brewery. The first brewpub in the United States was the Yakima

[62] Brewers Association. "Craft Brewer Defined." (Accessed March 25, 2018)
[63] House Resolution 1337. *26 U.S.C §5051.*(1978)

Brewing and Malting Company, which opened in Washington in 1982.[64] Brewpubs brew beers for sale primarily on-site with beer dispensed "directly from the brewery's storage tanks." The Brewers Association does classify some brewpubs as microbreweries when their off-site sales exceed 75% of their annual sales. These brewpubs permit guests to take larger quantities of beers to-go in growlers, allowing people to take home a sample of their favorite beers.

A unique segment of the craft brewery market is the **Contract Brewing Company**, which is a business that "hires another brewery to produce its beer," whether fully or partially produced there. These organizations maintain the marketing, branding, sales and distribution of their own beers, but those beers are produced, bottled or packaged by the **producer-brewery.** This definition can often cause confusion, because the contract company is the one hiring another brewery, not the company actually producing beers on contract for other breweries. One example of a producer-brewery is the Four String Brewing Company in Columbus, Ohio. Four String offers contracts for "start up and existing breweries," providing tank space to businesses who may not be able to afford to purchase the level of brewing equipment available at their facility or may need additional space on a temporary basis.

The final market segment of the craft beer industry is the **Regional Craft Brewery**, which is a larger, but independent brewery with a majority of their production focused on crafting traditional or innovative beers. These breweries have an annual beer production between 15,000 and 6 million barrels, essentially considered

[64] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 8.

one step above a micro-brewery in production volume scale. Anything larger than the regional craft breweries is considered a **large (or macro) brewery**, i.e., breweries that produce more than 6 million barrels annually. Two examples of the regional market segment are Rhinegeist Brewery, in Cincinnati, Ohio, and Great Lakes Brewery in Cleveland, Ohio. These breweries have more visibility and distribution due to their scale and can be found outside the communities, cities, or states in which they operate.

The Brewers Association also recognizes standard sales models when considering market segments. Breweries may employ one or more sales models, and some states legally require specific sales models or procedures. As a result, there are no real requirements for which models are recommended. The traditional sales method is known as the **three-tier system**, which is where the brewer sells to a wholesaler, who then sells the beer to a retailer, who then sells it to a consumer. In the **two-tier system**, the brewer operates as the wholesaler itself, selling its own beer to the retailer, and the retailer then sells to the consumer. There is also a **direct system**, in which brewers sell directly to their consumers through 'to-go' methods of growlers or kegs, as well as on-site tap rooms or restaurants. Brewpubs and microbreweries both employed direct systems, with tap rooms or tasting rooms that are incorporated into the breweries themselves.

Altogether, these definitions and classifications assist brewers with production goals and output considerations. By promoting craft brewing, the Brewers Association has assisted in the industry contribution of 67.8 billion dollars to the United States economy in 2016 alone. This accounts for the outlined sales models at all levels of the

craft beer market. The numbers do not include any economic contributions from macro-breweries in America; the craft beer industry account for 22% of the entire beer market in the United States.[65] The BA also recognized the creation of nearly 500,000 jobs in America in 2016, which includes brewers, serving staff, and other full-time positions.[66] These numbers point to a strong industry that shows no signs of slowing down.

3.3 Economic Impact of Brewing in Ohio

Despite an understated national presence in most ways, Ohio has proven to be a state at the forefront of the craft brewing movement. Like the national organization, the Ohio Craft Brewers Association's own mission statement is "To Promote and Preserve Ohio's unified craft brewing industry," and thus it has created a local network for amateur and professional brewers in the state of Ohio.[67] The Ohio Craft Brewers Association (OCBA) maintains a database of all Ohio craft breweries, and the national Brewers Association provides statistics to help track the development of Ohio's brewery economy. The OCBA embraces the values of "stewardship, empowerment, advocacy, and fun," and is the recognized industry leader in the state of Ohio. [68]

According to the national Brewers Association, craft brewing in Ohio has contributed 2.67 million dollars to the state's economy – the 7th highest number in the United States. The per capita contribution is $319.4 for every adult of legal age in Ohio. While the number of Ohio breweries continues to increase, OCBA has listed 254

[65] Brewers Association. "National Beers Sales and Production Data." (Acccessed March 25, 2018)
[66] Brewers Association. "Brewers Association Economic Impact Study". September 26, 2017. (Accessed March 25, 2017.)
[67] Ohio Craft Brewers Association. http://www.ohiocraftbeer.org/ (Accessed March 26, 2018)
[68] Ohio Craft Brewers Association. "About OBCA" (Accessed March 26, 2018)

breweries operating in the state currently; 61 of these were opened in 2017 alone.[69] The number translates to 2.1 breweries per capita (100,000 adults, aged 21 and older), which is 26th in the nation. The low per capita of the number of breweries, compared with the economic output, shows the relative success of Ohio's brewing industry. OCBA stated that the Ohio ranks fourth in the nation for craft beer production, and 11th for craft beer consumption. Ohio currently has 9 regional craft breweries located across the state, with a majority of these businesses operating in Cincinnati. There are 85 registered brewpubs and 123 registered microbreweries. Two branches of macro (large) breweries are located in Ohio, Anheuser-Busch and MillerCoors. These two macro breweries are Brewers Association associate members, meaning they do have some affiliation with the craft organization.[70]

Most of Ohio's craft breweries are situated in or around the major cities: Cincinnati, Columbus, Cleveland, Dayton, Toledo, and Akron. However, these locally-focused organizations have opened in communities across the state, providing neighborhood gathering places for their respective towns or counties.

[69] Ohio Craft Brewers Association. "Ohio Craft Beer Facts" (Accessed March 26, 2018)
[70] Ohio Craft Brewers Association. "Ohio Breweries" (Accessed March 26, 2018)

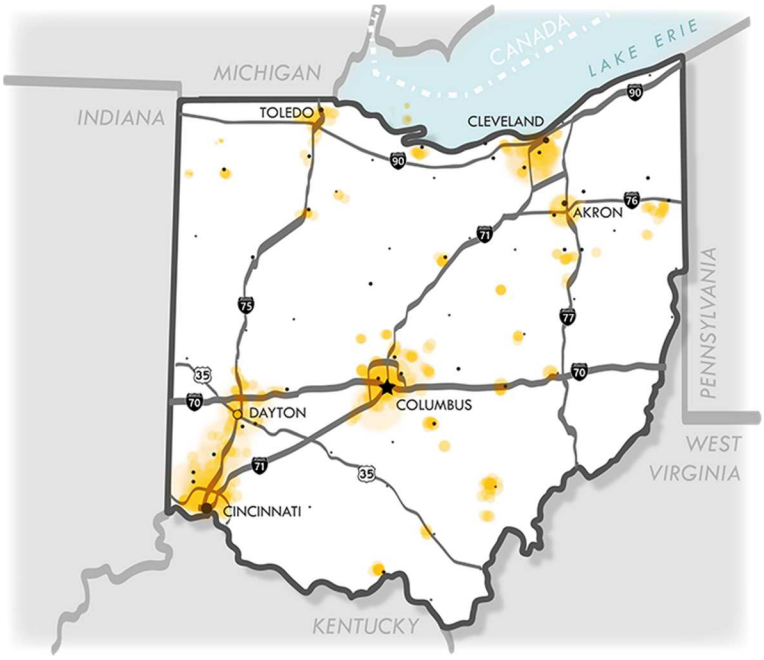

Figure 15: Craft Brewery Concentrations in Ohio in relation to major cities and transportation corridors (Graphic: by author. Data Source: OCBA, 2016)

3.4 Defining the Culture of Craft Brewing

Craft breweries have cultivated a very strong identity and culture in present day America. These unique neighborhood spaces build upon the feeling of ***Gemütlichkeit*** introduced by German immigrants prior to American Prohibition.[71] Intrinsically, the very aspect that had defined craft beer *was* the environment it inspired, despite the diversity in sizes, styles, and approaches of breweries. Concerning Ohio breweries, Dr. Paul Gaston wrote that "within this remarkable diversity there are important values represented with remarkable consistency throughout the profession."[72] Gaston outlined values embodied by craft breweries: topics like collaboration, architectural

[71] Appendix 1, this document, page 146.
[72] Gaston, Paul L. Ohio's Craft Beers. (Kent: Black Squirrel Books, 2016), 12.

preservation, product development, community engagement, and ecological responsibility. Additionally, some breweries across the country have embraced the concept of inclusivity by providing gender-neutral spaces and non-alcoholic brewed beverages such as craft root beers, ginger beer, coffees, or teas. These aspects of craft breweries transcended the industrial environment which typically defined the food and beverage service industry in the United States.

Craft breweries have become neighborhood 'third places' – creating an environment in which community members gather, converse, and relax. Brewery spaces also allow homebrewers to come together and share recipes or beers. The craft brewing movement also aligns in ways with the popularity of the 'maker movement' - a return to hand-crafted, local industries that reflect the strength, skills, and values of a tight-knit community.

Based on Gaston and Tyma's writings, combined with primary research conducted by this author, the common values embodied by craft breweries can generally be boiled down into three main categories. These values relate to the **place,** the **community**, and the **product.** *Place-based* values relate to the physical location of the brewery. They are focused on improving the physical integrity and health of the neighborhood or district. Consideration for place included connections to the history and economic centers of a community. Many breweries across the country have adapted historic industrial spaces to fit the modern production standards of craft brewing; open

Figure 16: Craft Brewing Culture focus areas (Source: author)

spaces allowed for the simple accommodation of the large pieces of commercial brewing equipment. In Ohio, breweries like Cincinnati's Rhinegeist, located in the pre-

prohibition Morelein Brewing building; and Columbus' Combustion Brewing, located in a former dairy, have benefitted from the lower prices of abandoned, historic structures.

Community-based values relate to the social and economic factors that impact a neighborhood and its residents. These aspects included a strong sense of responsibility for community engagement and consumer education. Brewers who offer tours of their brewhouses often included some information of the brewing process and the essential ingredients of beer. Others, like Abita Brewing Co. in Louisiana, have placed a major focus on environmental stewardship and technological innovations.[73] Breweries will often host social gatherings in their local community, or partner with other local businesses to create larger events. Some examples of popular events are 'fun runs', bike rides, brewery festivals, and concerts; these types of events contribute to the health and social connectivity of a community. In addition, the craft brewing industry "seems to attract people who give back."[74] There are numerous examples of breweries hosting charitable events which serve local, non-profit organizations, positively contributing to the spirit of the community at hand.

Finally, product-centric values are, plainly, what defines the brewery's beer production. Most modern craft beers are prepared with an emphasis on innovation and experimentation. Some of the most successful breweries in the United States have regularly improved their recipes, experimented with new flavor profiles, and have woven regional staples into their beers. An example of such a regionally-inspired beer

[73] Abita Brewing Co, Self-Guided Tour. 2018.
[74] Morrison, Jim, "Are Craft Breweries the Next Coffeehouse?" 4.

is Flying Dog Brewery's Dead Rise, an ale brewed with Old Bay® seasoning. This popular Chesapeake seafood condiment has a regional following that borderlines on obsession, and has served as a highly experimental beer addition. Flying Dog's incorporation of this regional culinary staple into their product has cemented its identity as a Maryland regional brewery. As the brewing process is integral to the product, many brewers chose to integrate the equipment and physical action of brewing into the consumer retail spaces. A common trend in American breweries was the placement of brew kettles within the consumer taprooms themselves.

The seamless combination of these three values – community, brand, and place – is the basis of the craft beer industry. These breweries have become integral parts of their community, bringing a sense of pride to local residents. Ohio's "Be Ohio Proud" campaign is one such offshoot of this value system, encouraging Ohioan's to focus on the products created by their own neighbors and friends, and to "Drink Local." The campaign linked all Ohio breweries, each of which serves as a representative for their local communities, into one collective, state-wide industry.

3.5 Collective Reputation

Professor Travis Bell of Florida State University summarized his research on the craft beer industry, stating that "unique to the craft brewery is the option to build a collective identity."[75] This idea of 'collective' identity or reputation was not immediately relevant in the craft beer industry, where local focus dominated the

[75] *Referencing 'New Identities from Remnants, page 797, by Lamertz et al.* Bell, Travis R. "What's In a Name", in Tyma, 108.

market. However, as the 'craft beer movement' has moved forward, a cohesive cultural reputation of the entire brewing community has also emerged. This reputation has garnered enough attention that larger macro-breweries attempted to cash in on their success, either through consolidation (purchasing local breweries and operating under the local name) or production of pseudo-craft brews like Blue Moon, which is produced by Coors.[76] Despite the confusion that macro-breweries have introduced into the beer market, many states and cities embraced this notion of 'collective reputation.' Local and state governments who searched for visitors and new residents also searched for new amenities with which to attract. In her 2017 study of legacy city character, Dr. Morrison wrote that "Norfolk and other cities have pursued [breweries] as attractions and economic development generators," which has sparked a separate form of 'brewery tourism.'[77] Through this ability to serve both a local community and outside visitors, craft breweries which embrace the place character of their respective communities have become modern community hubs and economic generators.

[76] Berning, Joshua, Marco Costanigro, and Michael P. McCullough. "Can the Craft Beer Industry Tap into Collective Reputation?" *Choices* vol. 32, no. 3 (2017): 1-6.
[77] Morrison, 5.

Chapter 4: Crafting a Sustainable Brewing Industry in Ohio

"As brewers, we acknowledge that we depend upon the natural resources and communities that make our livelihoods possible, and that ***threats to these systems affect our ability to brew beer****."*

-Brewer's Association Sustainability Subcommittee (2018)

Modern archaeology indicates that the earliest human settlements were enabled by the "cultivation of grains for beer, not bread."[78] The importance of beer and brewing is oft overlooked in terms of societal impact, despite being a primary generator for the development of early anthropogenic heritage. With the rediscovery of this heritage, more brewers have begun to focus on other cultural and environmental aspects that impact the production of beer.

Beer as a product has always been dependent on a healthy environment; the beverage cannot exist without the careful use of healthy yeast strains, of properly balanced water supplies, and biologically diverse malt and hops crops. However, the industry also produced large volumes of waste by-products; from acidic water, to spent grains and foamed wort mixtures. The turn of the 21st century bore witness to the development of an American society that was more ecologically aware and responsible than previous generations. This awareness and responsibility reverberated throughout the craft brewing industry with more brewers turning to sustainable approaches, including brewing equipment, locally-sourced ingredients, and innovative programmatic considerations in response to the Earth's rapidly shifting climate conditions.

[78] Sethi, 222. Reference to Robert J Braidwood et al, "Symposium: Did Man Once Live by Beer Alone?", 1953.

4.1 Advancing Sustainable Measures in the Industry

The Brewers Association has included sustainability as one of its top priorities of brewers and consumers. Their sustainability goals note that "maintaining a healthy balance between [environmental] stewardship, social enrichment, and economic vitality is important to the future success of craft brewing."[79] The brewing industry relies on the natural environment for the water and organic materials necessary for brewing and fermentation. In the past, climate shifts have caused shortages and losses in brewery agriculture, which dictated the price, availability, and even styles of beer possible. Hops in particular are very sensitive to severe shifts in humidity and temperature, and this sensitivity limited the areas where these plants can grow year-round. The Brewers Association, as a special interest group representing the economic impact of the brewery industry, recognized the impact sustainable systems have on agricultural industries like brewing. A major goal of the Association is to promote the best "business value" for its members; by classifying sustainability as a *best practice*, the organization acknowledged the economic importance of incorporating sustainable processes into the brewery industry.

To assist brewers in achieving the goals and priorities of the BA, a Sustainability Mentor was provided to its members. This professional was responsible for the development of an annual benchmarking report utilizing data provided by the BA's brewery members. The data compiled is also presented in a "Benchmarking Dashboard," which allows member organizations to view relative sustainability figures

[79] Brewers Association. "Sustainability." (Accessed March 25, 2018)

in categories of energy, water, agriculture, and other areas. The Dashboard software was created to "allow participants to monitor and validate the impact of operational changes on efficiencies and costs."[80] However, participation of breweries is completely voluntary, and requires brewery partners to work with the BA's Sustainability Mentor. In the 2015 report, only 235 breweries participated in the benchmarking process. The report noted that "many breweries were simply [too] overwhelmed with…. Operational demands to dedicate scarce labor hours"[81] towards the BA's benchmarking process.

As a result, the Brewers Association indicated an interest in having universities or outside organizations assist brewers with data reporting. By increasing the number of brewers who participate in a national benchmarking process, the craft beer industry as a whole should be able to understand its exact environmental impact; and, how solutions may impact overall waste cycles, energy usage, and recycled materials within the industry. The data compiled in the BA's annual report intends to assist new breweries in planning energy and waste metrics. Brewers can learn from other sustainably minded businesses in the development of new spaces, products, and brands, and can use available benchmarking data to improve their energy efficiency and environmental impact.

Analysis of the types of data requested by the BA indicates which sustainability metrics may be most beneficial to new brewery development. Areas of major focus in the annual report include electrical and fuel efficiency; water and wastewater management; carbon dioxide use and re-use; solid waste generation; recycling; and

[80] Brewers Association. "2015 Benchmarking Report." (Accessed March 28, 2018), 13.
[81] Brewers Association. "2015 Benchmarking Report." (Accessed March 28, 2018), 14.

greenhouse gas emissions. Analysis of these data sets conceded that brewpubs generally utilize more water and electricity than their strictly-brewery counterparts, due to increased needs for food preparation, increased sanitary services, and cleaning.[82] The report also acknowledges an "economy of scale," as the data indicated that larger breweries tended to be more efficient. The report also provided data summarizing average costs per barrel of beer produced, which serves as an extremely useful tool for start-up breweries to address sustainable design.

A final set of guidance manuals created by the Brewers Association outline recommended critical environmental design aspects and their effects on the craft brewing industry. The five categories compiled include manuals for: energy, solid waste, water management, wastewater management, and sustainable design-build strategies.[83] These free guidance documents provide brewers critical resource for approaching the architectural design and production process of a modern brewery, and how the five categories can influence best practices for the design of both the private production and the public consumption spaces.[84] However, a major shortcoming may be that the Brewers Association does not provide a holistic description of the brewing process, with identified opportunities for sustainable strategies to be implemented by a brewer. The guidance manuals also do not address an important feature of breweries, which is distribution networks of craft brewery products. Many beers and other

[82] Brewers Association. "2015 Benchmarking Report." (Accessed March 28, 2018), 38.
[83] Brewers Association. "Sustainability Manuals." (Accessed March 28, 2018).
[84] Brewers Association. "Energy Usage, GSG Reduction, Efficiency and Load Management Manual." (Accessed March 28, 2018).

alcoholic beverages are distributed to retail stores, outside restaurants or bars, and event venues by road in refrigerated trucks. Semi-trucks and other large distribution vehicles are inherently less environmentally friendly than smaller vehicles or rail options with better fuel consumption rates. When distribution networks grow, so too does their energy consumption through the distribution process. This increased use of energy through distribution serves as an influential factor when considering sustainable brewing enterprises. Brewpubs which sell most of their product on-site naturally utilize less fuel and non-renewable resources throughout the brewing process than regional or macro breweries with large distribution networks.

In this way, a neighborhood brewery is a more sustainable venue than a bar or facility which sells imported beer or other drink options. When the beer is freshly created and sold on-site, the drink quality remains relatively the same as when it was brewed and fermented. This radically differs from multi-million-barrel enterprises, which spend large portions of their resources distributing beer across the United States, and in some cases, the world.

Throughout the production of craft beer there are many byproducts released and resources consumed. Brewing relies on extremely large quantities of water and produces blackwater, which must be treated before it can be re-distributed. Water management has been highlighted repeatedly by brewers across the country as a particular concern. As a manufacturing process, brewing requires energy and resources in order to fuel the equipment. Because agricultural supply networks are critical for the production of beer, the effects of climate change and non-renewable energy sources on

the environment have serious implications for the future of the industry. There are many commercially available manufacturing technologies that aim to reduce the environmental strain of industry. Likewise, analysis and reclassification of brewery *byproducts as opportunities* from the very beginning of the design process will assist in the creation a more ecologically responsible business.

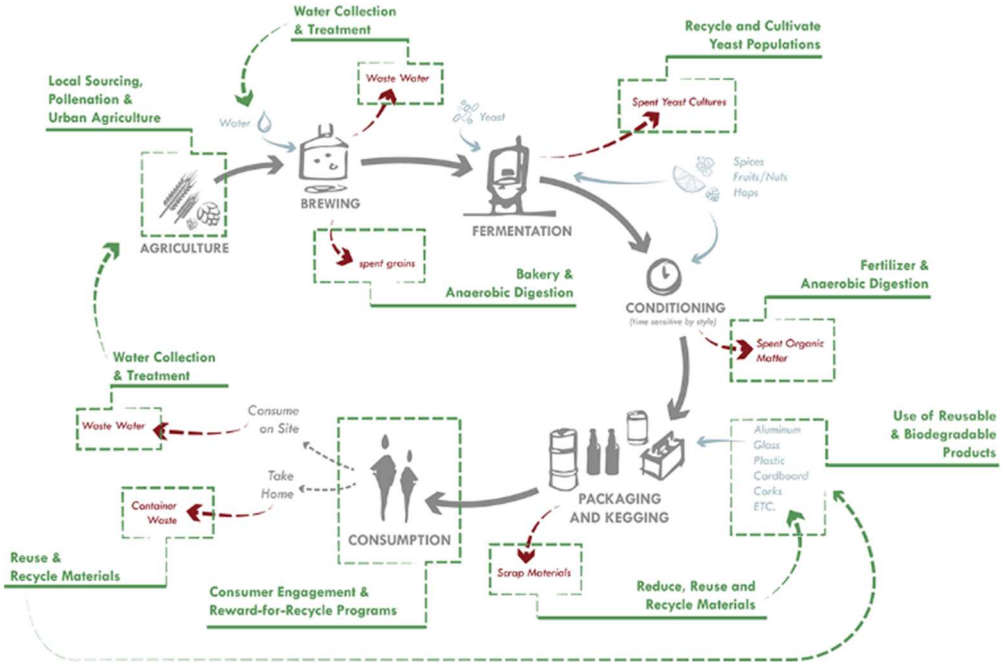

Figure 17: Identifying Circular Economy Opportunities in the Craft Brewing Process. Traditional Waste elements in red, identified instead as opportunities outlined in Green.

(Source: Author.)

4.2 Sustainable Agriculture and its Implications in Craft Brewing

One of the documented issues in the craft brewing industry is the increased cost and reduced supply of the raw ingredients available to produce beer. Hops in particular are a sensitive crop. *Hops* is a nickname for *Humulus lupulus,* a species of flower which

grows in vertical applications. The dried hop bud has several benefits in beer production. Hops are naturally anti-bacterial. Use of the plant introduced a more complex flavor profile to beer, and is integral in the production of the increasingly popular IPA style.[85] The crop is particularly sensitive to humidity, which restricts the regions in which hops can be grown. In the United States, hops are traditionally grown in the Pacific Northwest region, which creates large supply networks that require the use of non-renewable energies for distribution. In the current market, over seventy percent of hops were grown in this region, but these crops have been increasingly endangered by hotter and drier growing months predicted by the National Oceanic and Atmospheric Administration.[86] When crop yields suffer, they cause hops shortages which plague the industry on a sporadic basis. These shortages are exacerbated by exclusive supply contracts controlled by larger macro and regional craft breweries. In 2017 alone, brewing titan Anheuser-Bush InBev purchased the entire crop of South African hops, barring smaller United States brewers from having direct access to the international supply chain.[87] AB InBev claimed that poor yields prevented them from selling crops to other brewers; however, many of their craft competitors disagreed with that claim, stating that large-scale breweries' crop monopolies threatened the craft beer industry. Craft brewers across the country began to express concern that a monopoly of hops crops could stifle the creative and competitive diversity of the craft beer industry.

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[85] Gaston, 235.
[86] Kennedy, Caitlyn. "Climate Beer." *National Oceanic and Atmospheric Association*.
[87] Hines, Nick. "AB InBev to U.S. Craft Brewers: No Hops for You!" Accessed March 30, 2018.

However popular they may be, hops are not the only critical natural ingredient on which the industry relies. There are more prominent risks to the future of the brewery industry that include other natural resources crucial to the production of beer. In their 2017 Sustainability Report, New Belgium Brewing Company noted that "water and barley are particularly at risk for brewers" in terms of present environmental risks in present day. [88] In essence, the argument is simple: A lack of clean water, coupled with limited grain supply, could bring the brewery industry's success to a sudden halt. Therefore, new breweries can only benefit from the selection and encouragement of local malt and hops sources.

Because of the threat of irregular supply yields, some brewers have been forced to find alternative and creative sources for their hops and other ingredients. Several state educational systems have begun research projects exploring the economic and agricultural potential of hop and malt farming in their regions. The Ohio State University has created a beer agriculture research program which aims to "develop sustainable production practices directly related to Ohio growing conditions that will develop these Ohio industries," ideally keeping economic activity within the state's local markets.[89] This economic retention could also have a positive impact on urban communities through the integration of urban agriculture and brewery ingredient sourcing. The creation of ultra-local sources of hop plants can reduce the ecological impact of hops importation from the West Coast and countries like England and the

[88] New Belgium Brewing Co. "2017 Sustainability Report," page 3.
[89] Bergefurd, Brad. "Developing the Ohio Hops and Malting Barley Industry." Accessed March 29, 2018.

Czech Republic.[90] Breweries that have prioritized ecological responsibility are already altering their business practices to incorporate ecologically responsible sourcing for the natural ingredients which make up beer.

Ohio breweries developed with a unique asset in the state's rich agricultural resources. Located within the optimal growing area between 33- and 55-degrees

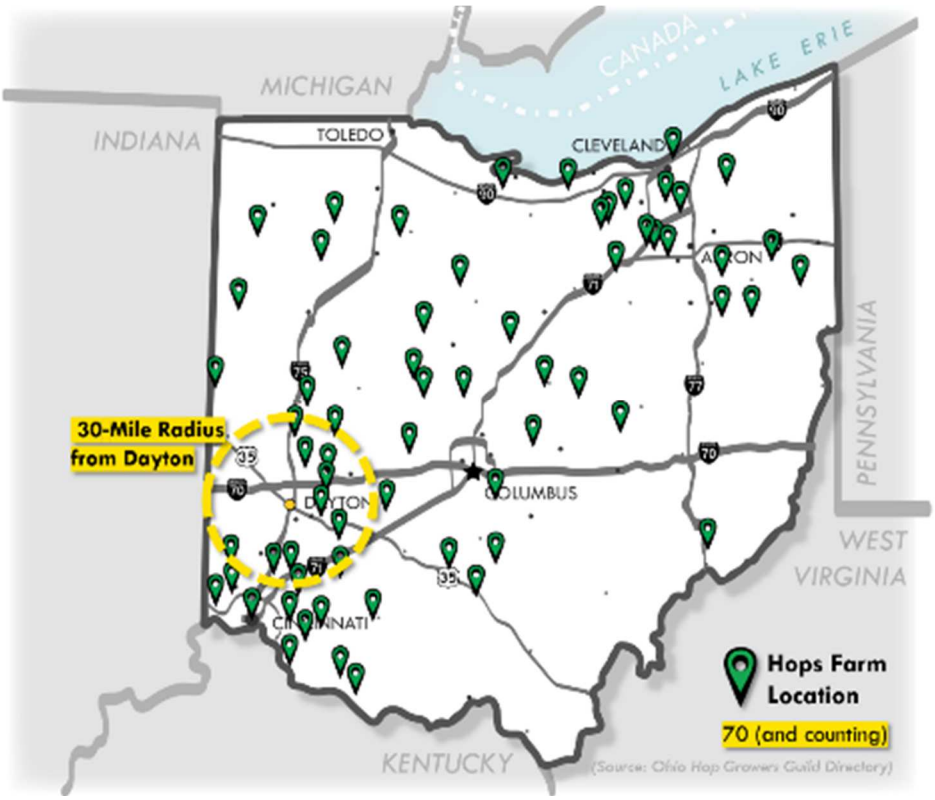

Figure 18: Hops Farms in the State of Ohio. There are approximately. 10 farms within 30 miles of Dayton. (Graphic by Author)

latitude, Ohio serves as an unlikely source for the most climate-sensitive crop required by craft brewing. This proximity has allowed for increased production levels within the

[90] Peter Adam Kopp and Reno. Department of History University of Nevada, "A History of Hoptopia : The Local and Global Roots of a Willamette Valley Specialty Crop TT -" (UMI, n.d.), 192.

state, primed for partnerships with local brewery programs. The increased prominence of urban farming in the United States has also contributed to the beer market in an unexpected manner, with some brewers turning to urban agricultural efforts to supplement their ingredient sources.

4.3 Water Supply and Treatment

One of the most precious resources on Earth is the supply of fresh, clean water. Water is essential to the production of beer, and without the proper balance of acidity, alkalinity, and minerals, brewing would not be successful. Some of the more successful breweries in the United States considers water their most important resource, and market this appropriately. Abita Springs, one of the sustainably-minded breweries in the Southeast United States, defined their beer by the pureness of their water: "While most other breweries must filter and chemically treat their water for the brewing process, Abita does neither. We take ours straight from the source."[91] Abita's process highlighted a key component of urban brewing, which concerned the quality and supply network of water. Perfect Plain's Director of Brewing Operations, Reed Odeneal, echoed this sentiment; his own experiences showed that wastewater produced by the brewing process often has high levels of acidity or alkalinity. In larger quantities, this imbalance overwhelmed city water treatment facilities, most apparent in Asheville, North Carolina.[92]

[91] Abita Springs Brewing Co. "How We Make Beer". Accessed 2018.
[92] Odeneal, Reed. 2018. Interview by author. Pensacola. May 28.

The chemical composition and balance of H_2O also has an effect on the flavor profiles of fermented beverages. Areas with a higher salinity level in the water supply are well suited for the production of the salted *gose* style, while waters high in alkalinity are better utilized when brewing a darker, more acidic beer like *Irish stouts.* Homebrewing expert John Palmer essentially wrote the home-brewing 'textbook' for the Brewer's Association, providing insight into topics such as sanitization, kegging, and yeast management. He also devoted a significant amount of time dissecting the chemical composition of water, and its direct impact on the quality of beer. An entire chapter of the text, "Adjusting Water for Style," highlights the important potential for brewers to experiment with the composition of their water. Palmer wrote that brewers "need to understand how the local water may have played its part in creating the style."[93] This critical component of water sourcing is legitimately threatened by rising levels of contaminated groundwater, droughts, and other climate and industry-related actions which affect the composition of a city or town's water supply.

In addition, the continued advancement and expansion of the craft brewing industry caused additional stress on the United States' water supply network. The World Resources Institute (NGO) has conducted significant research into the future impact of water-related risks, such as purity, access, and quantity. They provide an interactive tracker which allows the analysis of global water risk, on a scale of 1 (low risk) through extremely high (5).[94] This research has indicated that the region of Ohio which includes Dayton falls in the lowest-risk categories for access, quality, and

[93] Palmer, John J. *How to Brew*. Colorado: Brewing Publications, 2017. 357-371.
[94] World Resources Institute. *Aqueduct Water Risk Atlas.* 2018.

potential for droughts. While the research did indicate the obvious factor of flooding risks, the important conclusion from this data is that Dayton provides a favorable location for the development of the water-reliant brewing industry. Dayton is tied with Cincinnati for the best water-risk rating of all major metropolitan areas, which supported selection of Dayton for the development of a sustainable brewing industry.

4.4 Sustainable Brewing Case Studies

There are already craft brewery businesses which have incorporated sustainable brewing practices as an integral part of their production and design. However, many of these breweries have developed these strategies as an extension of the 'experimental' culture of craft brewing. In rare cases, these strategies are holistically planned in the design of new brewing spaces – many are older breweries who have 'retrofitted' technologies to improve financial returns and efficiency of the brewing process.

The list is not exhaustive, nor complete; however, the innovative technologies that these breweries have implemented can serve as inspiration for the creation of new, sustainably-focused projects. Many of these projects have documented economic, environmental, or community benefits because of the use of sustainable technologies and programs. Many have continued the improvement and innovation of these sustainable aspects of the brewing process, including agriculture, energy sourcing, and distribution, which helped to push the future of craft brewing into a more sustainable, equitable industry.

Great Lakes Brewing Company | Cleveland, Ohio[95]

"From the beginning, we've aspired to craft our beloved and award-winning beers in a socially and environmentally responsible way. As we continue to grow and expand, we will do so with care and respect for our products, employees, customers, and planet. We know that we are not perfect, but through zero-waste initiatives, employee benefits and wellness programs, energy conservation, responsible purchasing, and philanthropic giving in communities where our beer is sold, we strive to do the best we can."

Founded: 1986

Annual Production: ~160,000 Barrels

Brewery Scale: Regional Craft Brewery (21st Largest in the United States)

Innovations: Water recycling, local sourced ingredients, spent grains for mushroom cultivation, low-fill beer reuse

New Belgium Brewing Co. | Fort Collins, CO[96]

"New Belgium exists, in part, to prove that business can be a force for good in the world. As a brewery, we like to bring people together. Whether it's helping like-minded friends advocate for climate policy or sharing a beer and learning about our local watershed, we're doing what we can to help a divided nation come together to secure the health of people, profits and planet for our country."

Founded: 1991

Annual Production: ~950,000 Barrels

Brewery Scale: Regional Craft Brewery (4th Largest in the United States)

Innovations: 99% waste stream diversion, solar and biogas energy, greywater collection

Alaskan Brewing Company | Juneau, Alaska[97]

"We believe that beer is good. And Alaskan Brewing is committed to exercising environmental stewardship in every aspect of making that beer. It is our aim to have a zero-net negative effect upon our environment by reclaiming and reusing at least as much waste and emissions as we produce. Innovation is the key to meeting this goal. We call that Beer Powered Beer."

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[95] Great Lakes Brewing Company. "Our Sustainability Story." Accessed May 21, 2019. https://www.greatlakesbrewing.com/sustainability

[96] New Belgium Brewing Company. "Living our Values Everyday." Accessed May 21, 2019. https://www.newbelgium.com/sustainability/

[97] Alaskan Brewing Company. "Beer Powered Beer". Accessed May 21, 2019. https://alaskanbeer.com/beerpoweredbeer/

Founded: 1986

Annual Production: ~160,000 Barrels

Brewery Scale: Regional Craft Brewery

Innovations: CO_2 – Recovery System, Mash Filter Press (1st in United States), Spent Grain utilized to fuel the steam boiler system

Abita Brewing Company | Abita Springs, Louisiana[98]

"Green brewing means that the Abita Brewing Company is committed to preserving the environment through conservation of resources, energy efficiency and corporate social responsibility.
At Abita, we work to make great beer every day. We also work to make Abita Springs, Louisiana and the world around us a better place to live by being a good neighbor."

Founded: 1991

Annual Production: ~950,000 Barrels

Brewery Scale: Regional Craft Brewery (4th Largest in the United States)

Innovations: Heat exchange, wastewater treatment, biodegradable filtration, Bio-Energy Recovery System (Anaerobic Digestion), Renewable Energy Sources, Recycled Materials, Spent Grains as Animal Feed.

4.5 Sustainable Breweries in Post-Industrial Spaces

Architect Carl Elefante, AIA, once said that "the greenest building is the one already built."[99] The natural alignment of historic preservation and sustainable design goals ensured the success of adaptive reuse projects which integrates historic building characteristics with innovative sustainable design technologies and systems. The Brewer's Association guidelines even identified rehabilitation of existing properties as a 'high priority' for member brewers, stating that this type of property "brings an

[98] Abita Brewing Company. "Green Brewing." Accessed May 21, 2019. https://abita.com/about/green-brewing
[99] Elefante, Carl. The Greenest Building Is... One That Is Already Built. Forum Journal. 27. 62-72. 2012.

important characteristic and potential 'vibe,"[100] or sense of *place character*. This priority aligns with the rehabilitation of post-industrial facilities which have fallen into disuse. The adaptation of a former production facility into a modern brewing industry facility allows for a preservation of *legacy*, not just the historic structure. The reuse of former industrial spaces also prevents these structures from being demolished, allowing for the diversion of building materials from landfills around the country. As author Jim Morrison concluded in his 2017 article for *Smithsonian Magazine*, many breweries have jumped on the historic preservation bandwagon, selecting former industrial sites for their businesses across the country.[101] For the development of a sustainable brewing industry, the most logical choice is the selection of a post-industrial site to rehabilitate, as the program can be naturally integrated into a space originally designed for the production of goods on a local scale.

[100] Brewers Association. "Sustainable Design and Build Strategies for Craft Brewers." 2017.
[101] Morrison, Jim, "Are Craft Breweries the Next Coffeehouse?" 1-5.

Chapter 5: Wright-Dunbar Village

Reviving Third Places in West Dayton

> *"[The Wright-Dunbar Village] is a really wonderful example for the rest of the country of* ***a way to use your historic assets and literary assets to try to revitalize neighborhoods****."*
>
> - First Lady Barbara Bush *(2003)*

As the major economic artery of downtown Dayton, the Third Street Corridor represented a rich microcosm of the legacy of the Gem City. Originally a streetcar suburb known as Miami City, the Wright-Dunbar Village was annexed to the city in 1869. The heart of the Village was located roughly one mile outside of Dayton's central axis of Third and Main streets, creating a western district with its own rich, unique culture. Following incorporation into Dayton's city limits, the area became a tightly-knit community of Easter Europeans, and later, west Dayton "emerged as the cultural and commercial center of Dayton's African-American community."[102]

The modern identity of the Wright-Dunbar Village reconnects the neighborhood to three of its most nationally innovative and influential residents. A component of the National Park Service's operations within West Dayton is the interpretation of Paul Laurence Dunbar's and Wilbur and Orville Wright's formative years in the area. The Wright Brothers opened their first business, a print shop, at the corner of Third and Williams Streets, the modern-day center of the Wright Dunbar Village. The success of this print shop was credited as the catalyst for both Dunbar's and the Brother's careers. Orville Wright (1871-1948) attended school with fellow

[102] National Park Service. "Wright-Dunbar Village." Accessed June 12, 2018.

native Daytonian, the gifted African American writer Paul Laurence Dunbar (1872-1906). Historical records show that Dunbar was a close friend of the brothers; Dunbar learned how to build a bicycle with the young men, and he also collaborated on a publication when the Wrights opened their first business in the year 1889. Dunbar's publication, the *Tattler,* was short-lived, but the paper helped to launch the young poet's career. He became one of the first internationally acclaimed African American literary figures, using his work to combat the racial discrimination and significant health issues like tuberculosis that he faced throughout his life.[103]

The other two historical titans of West Dayton, Wilbur and Orville, were known locally for much more than their contributions to American aviation. Following their successful publishing collaboration with Dunbar, the brothers followed their passion of mechanics, and opened their first bicycle shop at 1005 West Third Street in the year 1892.[104] Their financial success coupled with a keen interest in the mechanics of flight led them to international acclaim. Despite no college education, the Brothers cracked the barrier for sustained man-powered flight with their 'ingenious' strategy of wing-warping - a technology that led to the development of the modern aviation industry. [83] While the Wright Brothers operated their bicycle business in five separate locations within the commercial districts of the former Miami City suburb; only two locations remain intact in their original locations. The third shop at 1127 West Third Street, in which the Brother's major work on the gliders occurred, was whisked away by Henry Ford to Ford's Greenfield Village in Dearborn, Michigan in 1936. The move occurred

[103] Ohio History Central. "Paul L. Dunbar."
[104] Ohio History Central. "The Wright Brothers."

before city officials even had an opportunity to consider the impact the structure on the Village and city. Their second bicycle shop, located at 22 South Williams Street, was rehabilitated, and is operated as a museum by the National Park Service.[105]

The most overlooked industrial property of the Wrights was the location of the first Wright Cycle Exchange. Converted into an ice cream factory in the early 1900s, the unassuming structure was the site which launched their careers as successful entrepreneurs. Unfortunately, this first shop site was determined at risk of demolition in 2012.

5.1 Reuse of West Dayton's Post-Industrial Sites

The Wright's first location at 1005 West Third Street was originally a small, wood-framed structure. Author Arthur Renstrom reviewed the Wright Brother's papers, held by the Library of Congress so as to confirm details about their entrepreneurial legacy. According to his extensive primary research, the Wrights quickly moved their rapidly successful business to a larger location on Williams Street in the year 1895. The Brothers never manufactured their own bikes at the 1005 Exchange location; instead, they merely rented the building, which they operated as a sales and repair exchange.[106] A lack of direct connection with the aviation legacy of the Wrights led local and state officials to overlook the site entirely, which left it largely abandoned and unprotected for decades.

[105] National Park Service. "Wright-Dunbar Village."
[106] Renstrom, Arthur G. *Wilbur and Orville Wright: A Chronology Commemorating the Hundredth Anniversary of the Birth of Orville Wright.* Washington, DC: NASA, 1971. Reissued 2003. Page 2.

The structure's abandoned condition culminated in the City of Dayton's attempt to pursue demolition of the site in 2012. The action was halted by the State Historic Preservation Office (SHPO). The SHPO argued that Dayton had not done enough to preserve the structure, and had not provided valid arguments for the demolition of a historic structure which significantly contributed to the overall *integrity,* or level of original material present, of a state and federally-recognized historic site.[107] Though the city backed off of their demolition plans, they did not prove to be good stewards of the 1005-1031 block of West Third Street, or the larger West Dayton neighborhood. Preservation Ohio, one of the state's leading advocacy groups, had named the property one of the most Endangered Historic Sites in 2016 and 2017,[108] as over half of the entire block had been vacant and deteriorated for years. This level of vacancy and deterioration is reflected across the entire Wright-Dunbar Village; by 2019, over 35 percent of parcels were either vacant, abandoned, underutilized, or demolished within a quarter mile of the main intersection of Williams and Third Street. (Fig. 30)

[107] *Information provided in letters obtained by the author from City Department of Planning officials in 2018.*
[108] Preservation Ohio, "2016 List of Ohio's Most Endangered Historic Sites." Accessed June 26, 2018

Figure 19: Enlarged Figure-Ground Plan of Wright-Dunbar Village (Source: Author)

In essence, preservation attempts of this block in the past have been flawed due to their focus on the Wright ties alone. City planners noted that three of the interior walls were actually remnants of the Wright Cycle Exchange, but those walls are not truly representative of an acceptable level of architectural integrity.[109] Therefore, the Wright Brother's use of the site should not be the sole focus of the rich narrative of this commercial site. The site more broadly reflects 1005 West Third Street's connection to the vernacular, industrial heritage of the Gem City. The primary industrial enterprise

[109] Yanney, Matt. "The Gem City Ice Cream Company and the 1st Wright Cycle Shop." Getting the Story Wright. December 14, 2014. Accessed June 26, 2018.

located at the site was the business which followed the Wright Brothers, the Gem City Ice Cream Factory.[110] The Company was founded in 1901 by Mr. George Antrim, another Wright's acquaintance, and is credited with the production of "the first manufactured ice cream in Dayton."[111] Sanborn Fire Insurance maps of the time period show major renovations and additions completed by the Gem City Ice Cream Co., which led to the 1914 facade iteration and layout. (Fig. 22)

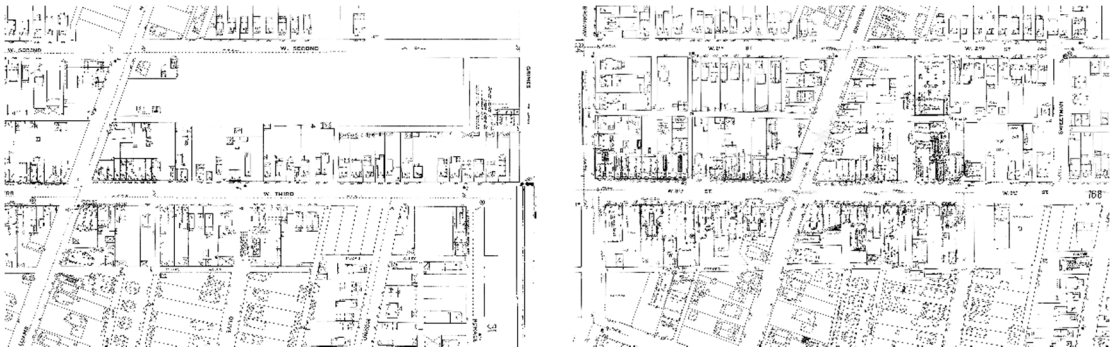

Figure 20: Comparisons between the 1896 (Left) and the 1919 (Right) Sanborn Maps. (Source, Sanborn Map Company.)

The address was expanded to include storefront properties from 1005-1011 West Third Street, including a bakery, an ice cream parlor, and office.[112] Following the Great Flood of 1914, the Gem City Ice Cream Factory reportedly renewed production within a day, which served as a testament of the quality of construction and industrial design of the structure.[113] An additional warehouse depicted on the 1919 Sanborn map on the block between French Lane and West 2nd Street, was demolished following the

[110] Yanney, Matt. "The Gem City Ice Cream Company and the 1st Wright Cycle Shop."
[111] National Register of Historic Places Nomination Form, No. 88003194. February 1989.
[112] Sanborn Map Company. "Sanborn Fire Insurance Maps : Dayton, Ohio." New York City: Sanborn-Perris Map Co., 1919.
[113] "How an Ice Cream Plant Stood Severe Test." The Creamery and Milk Plant Monthly, 2, no. 12. August 1914. Accessed February, 19, 2018.

closure of the Factory.[114] The Gem City Ice Cream Company cemented the site's connection to Dayton's industrial heritage, but the structures were abandoned following the closure of the Factory. The company prevailed through the Great Flood, two world wars, and the Great Depression; a testament to the entrepreneurial legacy of Mr. George Antrim and his colleagues.

How Efficiency Is Secured by Proper Arrangement

Figure 21: Industrial production at 1005 West Third Street, 1914. (Source: The Creamery and Milk Plant Monthly, Volume II)

Unfortunately, demolition was one of the common urban renewal strategies utilized for public and private development in the second half of the 20th Century. Both

[114] Yanney, Matt. "The Gem City Ice Cream Company and the 1st Wright Cycle Shop."

the City and private developers contributed to the degradation of the historical integrity of the Wright-Dunbar district. What once was a cohesive, turn-of-the century commercial district representing the vernacular, Midwestern 'suburb', had become a patchwork of deteriorating historic buildings and vacant lots. The City of Dayton retained ownership of the buildings located at 1005-1011 West Third Street, but immediately adjacent to this historic industrial property were several vacant, deteriorating private commercial properties which have immense potential for the economic revitalization of the Wright-Dunbar Village's historic commercial corridor.[115] These sites tended to have real estate values far below the typical per square-foot cost for new construction nationally. State and local officials have turned to historic preservation to ensure the protection of the Village's legacy and integrity, and economic restructuring through designation of the Wright-Dunbar Business District has allowed the framework for the Village's commercial renaissance. The Wright-Dunbar Business District's slogan, "Live the Legacy," represented the ideal goal of many historic commercial districts – a walkable, vibrant neighborhood with rich social and retail opportunities.[116]

Positive news from the Village heralds the market potential for the development of this long-abandoned block of West Third Street. Within the first quarter of 2019, Wright-Dunbar Inc., the primary commercial property managers of the Village, shared that they had reached 100 percent occupancy of their leasable properties.[117] Erica

[115] Reference numbers for properties.
[116] Wright-Dunbar Inc, "About Us."
[117] Robinson, Amelia. "Urban Chic Hair Salon to open in Wright-Dunbar district in Dayton." *Dayton Daily News,* January 23, 2019. Accessed January 23, 2019.

Hubler, real estate director also highlighted that the organization also had several historic buildings available for sale, indicating that owned properties were still not as successful as leased properties. However, this renewed commercial district activity indicates the feasibility of new leasable space within the commercial blocks of the Wright-Dunbar Village.

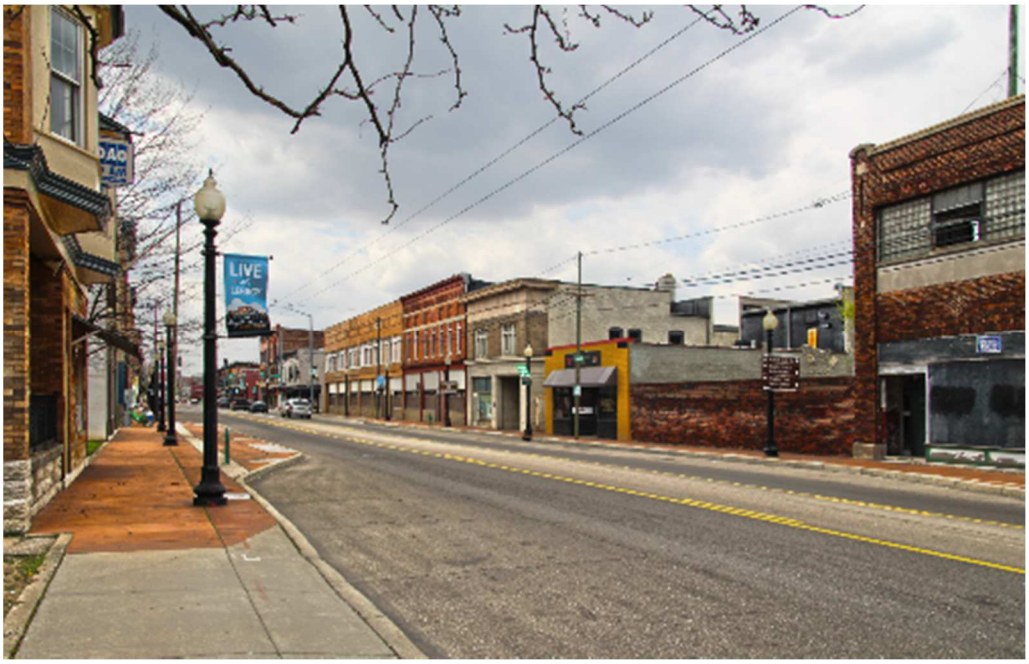

Figure 22: Despite a rich history, the Business District is often devoid of pedestrian activity. (Source: Author, 2018)

5.2 Historic Designations and Overlays

One of the most straightforward tools for preserving the place character of a historic neighborhood is designation on a local, state, or federal historic registry. The National Register of Historic Places, maintained by the United States Department of the Interior, is comprised of sites, structures, districts, landscapes, and archaeological resources which are significant to the cultural heritage of the United States. In West

Dayton, National Register listing provided a first step for the protection of resources. Once registered, these sites do not immediately gain legal protections, but they become eligible for tax credit programs and gained increased public notice that can contribute to 'saving' a place's integrity and character.

Within the Wright-Dunbar Village, there were two original National Register nominations that influenced development and planning efforts in the area. As *Historic Districts*, these sites represent a broader context and historical narrative than an individual property listing, being comprised of multiple 'contributing' structures which are integral to the historic *place character* of the community. While these two districts are not connected, the neighborhood which they represent has benefited from their historic designation.

The West Third Street Historic District (No. 88003194) included the main four commercial blocks of the original 'Miami City' suburb. The streets which bound this historic district were Broadway Street to the west; Shannon Street to the east, French Lane to the north, and Peck's Alley (now Sanford Court), with a small extension that encompassed the Dayton Aviation Heritage National Historical Park museum. (Figure 23). The West Third Street Historic District was nominated to the National Register (NRHP) in January of 1989, with 28 of 32 buildings designated as contributing resources.[118] In the description of significance, the nomination listed that "this streetcar commercial block is considerably different from other examples in Dayton. [West Third Street] is more urban, compact, and architecturally distinguished, and is on a

[118] National Register of Historic Places. *West Third Street Historic District*. Pg 1.

greater scale than others found in Dayton."[119] The unique characteristics of Wright-Dunbar Village ensured its future significance, and the National Register listing serves as acknowledgement of this importance. This area was also referred to as the Wright-Dunbar Business District, and serves as the future generator of economic revitalization for the neighborhood.

Another key National Register listing for the Wright-Dunbar Village was the designation of the Dunbar Historic District (No. 80003174). Unlike the West Third Street listing, the Dunbar District represented primarily residential resources in West Dayton. The Dunbar Historic District is organized primarily along North Summit Street, which is just three blocks west of the designated West Third Street Historic District; additionally, the boundaries of this district were defined by lots, not streets. The area was listed on the National Register due to its architectural significance, which was representative of "the typical modest middle-class housing built in the west side" in the late 1800s.[120] National Register designation of a historic district also offers state level protections, and has ensured the retention of integrity for the greater context of Dunbar's house. Rather than a significant structure standing amidst new construction, devoid of context; the Dunbar Historic District has allowed the community to preserve Dunbar's adulthood home and its surrounding context from the ravages of aggressive demolition and construction by developers unconcerned with Dunbar's legacy. Individually, the Paul Laurence Dunbar house is designated as a Landmark, and has

[119] National Register of Historic Places. *West Third Street Historic District*. Section 8, Page 3.
[120] National Register of Historic Places. *Dunbar Historic District.* Section 8, Page 4.

been preserved as a house museum.[121] However, the boundaries do not encompass any commercial properties within the Wright-Dunbar Village, leaving the West Third Street Historic District as the preliminary signifier of the area's commercial and industrial heritage.

Figure 23: Wright-Dunbar Village, with federal Historic Districts Outlined. (Source: Author)

Between the two National Register districts, the commercial district of the Wright-Dunbar Village retains no federal recognition of individual properties on the NRHP or through the National Historic Landmarks program. Individual property listing and landmarking through these national programs offers a greater level of protection for individual structures, rather than the blanket recognition provided the

[121] City of Dayton. "Individual Landmarks." Accessed June 26, 2018.

National Register district. This lack of individual recognition of the Gem City Ice Cream Factory has led to gaps in protection between the federal, state and local level. Dayton does not currently have much in the way of protection of its historic resources within the municipal jurisdiction. The city maintains its own inventory of historic properties, known as the Dayton Historic Register. The Dayton Landmarks Commission helps regulate the preservation activities within the city, including determining eligible properties for the national register and overseeing modifications to historic structures in Dayton. [122]

The existence of the Commission allowed city officials to declare their intent to demolish the Factory in 2012, despite its prominent location in the West Third Street National Historic District. The State's tighter regulations on the demolition of nationally recognized districts were what allowed SHPO to deny a certificate of appropriateness (COA), preventing the demolition. This situation highlights an opportunity for Dayton to revisit its own regulations regarding historic properties, and for the Wright-Dunbar Village business and civic leaders to pursue individual designation of historic properties within the district.

The National Park Service's own presence within the Wright-Dunbar Village also offers some level of protection. The National Park Service's continuous presence at the southeast corner of Third and Williams streets allowed investment and continued stewardship in and surrounding the so-named Dayton Aviation Heritage National Historic Park. NPS created a museum, which was a synthesis of both newly constructed

[122] "Dayton Landmarks Commission." City of Dayton. Accessed May 21, 2019. https://www.daytonohio.gov/453/Landmarks-Commission

spaces and the adaptive reuse of three historic storefronts from 1032 to 1042 West Third Street. While the museum plan was integral for the rehabilitation of the aforementioned commercial block, the museum's entrance was oriented along Williams Street, not the main axis of Third Street. This orientation, coupled with the elimination of the Third Street storefronts, created a program which disengaged the entire block from the commercial corridor. In the 1900s, a pedestrian could enter these businesses and engage with storefronts along the block; presently, this connectivity has been lost. This loss shifted the commercial connection to the northern front of West Third Street, from Williams Street to Sweetman Street. However, every storefront along this block remained vacant, leaving two blocks of disengaged commercial property along Third Street.

Figure 24:View of the NPS Museum, looking Southwest from the Corner of Williams and Third Streets. Visible lack of pedestrian activity due to the elimination of storefront tenant space. None of the storefronts pictured here are accessible from the street. (Source: Author)

Though positive, federal registration and park operation are not the only factors which led to the preservation of the Wright-Dunbar Village historic district. The National Park Service explained their approach to the Village's comprehensive revitalization, noting that "Innovative housing strategies by the city of Dayton, combined with Dayton Aviation Heritage National Historical Park and the work of Wright-Dunbar, Inc. have assisted in creating a viable urban neighborhood and a resource for Dayton history."[123] While legal protections are a positive starting point, the economic revitalization of the Wright-Dunbar Business District would not be

[123] NPS. "Wright-Dunbar Village." Accessed June 26, 2018.

possible without city-led initiatives designed to improve walkability, affordability, and density. Dayton incorporated the West Third Street Historic District within the Wright-Dunbar District, designated through the local Dayton Historic Register.

In addition to legal protections offered by federal and local registration, Dayton has enabled communities to take revitalization planning into their own hands, providing Community Engagement and development grant programs in order to help with the revival of social connectivity and structural integrity in historic neighborhoods. The City provided a set of standards, titled the *Blueprint for Rehabilitation*, that are required for any alterations of historic properties within Dayton. This structured document defines the City's consideration for responsible development in historic districts. The city provided plans for the redevelopment of the Wright-Dunbar Village in 1995, and they were updated in 2013.[103]

While ambitious and promising, the City's planning for improved housing density and commercial revival within the Wright-Dunbar has not met initial expectations. In mid-2017, following nearly $250 million in housing and capital investments, the City of Dayton offered thirty vacant residential lots for a dollar apiece to qualified developers. According to local news sources, the real estate value of residential properties had steadily risen in comparison to other neighborhoods around Dayton.[124] While innovative real estate programs have been employed in other areas of the United States, they generally required a commercial or social business corridor to

[124] Frolik, Cornelius. "Zero Takers for 30 Properties in Dayton's Wright Dunbar Village." Accessed June 26, 2018.

support the influx of new residents. By 2017, a majority of the Wright-Dunbar Village's commercial properties were vacant or abandoned, providing limited amenities for real estate developers or prospective residents. As a result, the City of Dayton reported that there were no interested parties in their vacant property offering, which was a strong indicator that the innovative program may have been *too* innovative for the present moment.

Fortunately for residents and city officials, strong indicators were present that commercial revival led to gains in residential density and development. In other Ohio cities, the commercial revitalization of historic districts such as Over-The-Rhine (Cincinnati) and Wick Park[125] (Youngstown) has proven to be an economic success for both business owners and residents. In part, these projects were successful because they focused on the revival of informal 'third places,' as described in Oldenburg's research.[126]

5.3 Proposed Site Definition

The site for the creation of a new brewery-centric 'third place' is vacant industrial and commercial property within the Wright-Dunbar Business District. Adjacent to both Wolf Creek and the Miami River, the Wright-Dunbar Village is located just one mile from the center of Dayton's downtown business district (the intersection of Main and Third streets). This proximity has the potential for future

[125] Sowers, Scott. "Youngstown Reinvents its Downtown." *The New York Times*. Published May 26, 2015. Accessed June 26, 2018.
[126] Oldenburg, Ray. *The Great Good Place,* i-xii.

pedestrian and cyclist connection, as the city of Dayton announced a bridge replacement project to improve the aged, unsafe bridge currently connecting the Village to the downtown business district.

Within the site, there are many residential and commercial resources within the easily walkable quarter-mile radius. The main portion of the site is directly north of the Dayton Aviation Heritage National Historic Park. Boundaries of the proposed site are defined by West Third Street to the south, Sweetman Street to the east, West Second Street to the North, and Williams Street to the west. (Defined in blue, Figure 27)

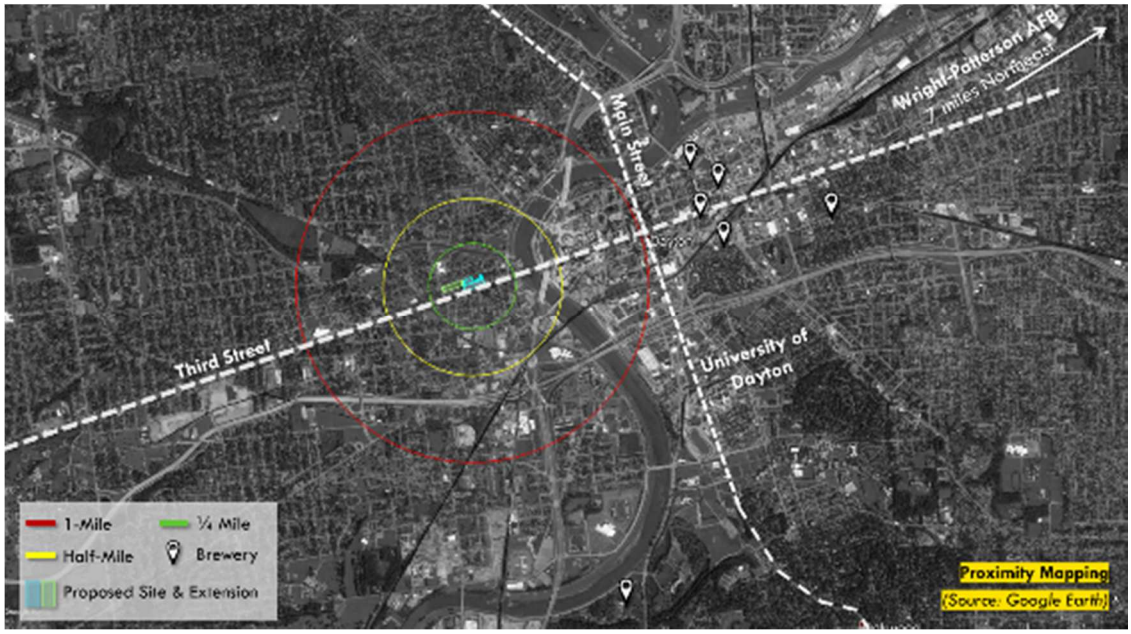

Figure 25: Proximity Map of the Proposed Site in West Dayton (Source: Author/Google Earth)

This site boundary incorporated one of the four contributing commercial blocks in the West Third Street National Historic District. Block No. 1 (Fig. 26) is comprised of two occupied, one story buildings and four vacant multi-story buildings. Adjacent parcels one block to the east and north, respectively, were also included in the project

site. The block directly north (Fig. 26) has six houses of both historic and new construction, but included a large amount of vacant land present along French Lane, Second Street, and Williams Street. The vacant parcel located between 1005 West Third Street and Sweetman Street was also included within the site boundary.

The total area included in the project boundary is roughly 184,000 square feet, or 4.2 acres.

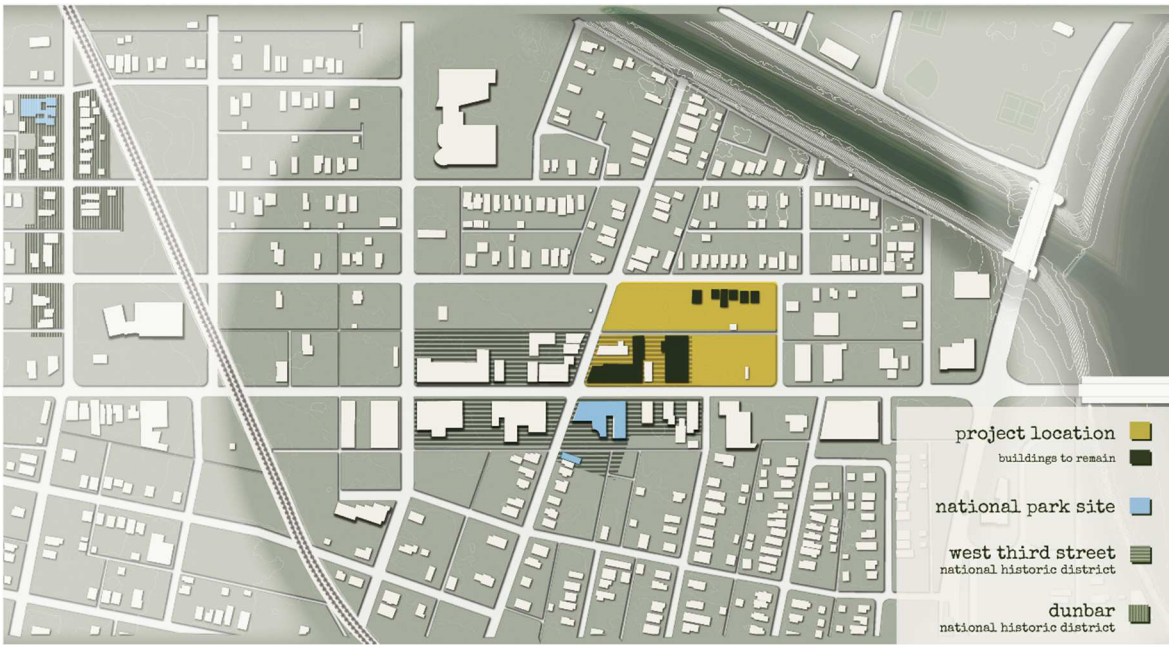

Figure 26: Project Site Definition (Source: Author)

Of the thirteen structures included in the project site, only four are considered 'contributing' resources to the National Register historic district. (Fig. 30) These properties carried the requisite protections under Ohio state law. The streetscape along

this primary (south) elevation was maintained as a low-scale, two-story commercial block. The contributing properties are as follows:[127]

A. 1005 West Third St. – The Gem City Ice Cream Co. Building

   The original building was constructed in 1886 with the façade and alterations dated 1914. This structure was the former factory building, and the site of the Wright Brother's first bicycle exchange. The architectural style is listed as a vernacular industrial structure.

B. 1019-1021 W. Third St. – the Midgett Theater. The former movie theater was constructed in 1912, and is listed in the Neoclassical style.

C. 1023-1027 W. Third St. – Mory's Block. The former social hall and business association office was constructed in an elaborate 'commercial Romanesque' style. The building dated back to 1884, making the structure one of the earliest in West Dayton – representative of the early streetcar suburb's days before city annexation.

D. 1029-1039 W. Third St. – J.A. Pryor Building. With initials inscribed on the primary elevation, the Pryor Building dates to 1924. The structure is a typical example of 20th-century commercial buildings in Ohio legacy cities.

The two non-contributing commercial properties are also the two remaining occupied businesses on the block. According to preservation standards, these structures can be

[127] National Register of Historic Places. *West Third Street Historic District*. Item no 7&10, pg 3 (12 of 49).

removed from the Historic District without impacting its integrity. These structures' descriptions are as follows:

E. 1017 W. Third St. - Office Building. Constructed sometime in the mid-1960s, this structure is currently in use as a private insurance company.

F. 8 N. Williams St. – Post Office Building. This structure is listed as a 1950s era intrusion, and was noted under private ownership in Montgomery County property records.

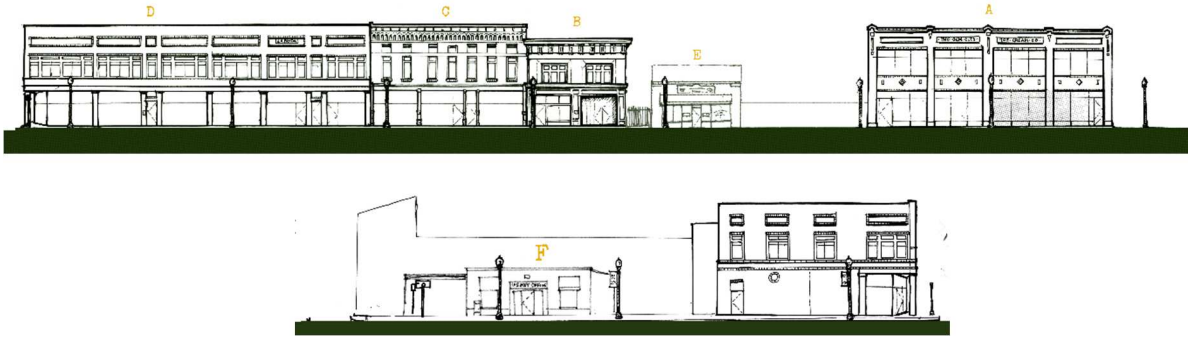

Figure 27: Historic Properties along Third Street, South Elevation (Source: Author)

Figure 28: Historic District Boundaries. Non-Contributing Structures striped (Source: NRHP Ref. No. 88003194)

Altogether, this site area comprises the northeast quadrant of the core Wright-Dunbar Business District. The site represents one quarter of the neighborhood's 'downtown area,' stressing the importance of a new program for the quadrant.

5.4 Economic and Demographic Analysis of Wright-Dunbar Village

The present demographic conditions of the Wright-Dunbar are a direct result of years of racially biased housing policies (redlining), urban renewal projects, interstate construction, and civil unrest. The National Park Service documents the construction of major transportation routes like Route 35 and a CSX rail line, directly south; and Interstate 75, directly east of the Village. These fast, multi-lane rail and highways were constructed with the liberal usage of bridges, effectively severing Wright-Dunbar from the downtown economic center and other southern residential neighborhoods. Redlining policies had rated the Wright-Dunbar Village as the lowest ranked category, which prevented many African American residents from accessing mortgages and other real estate opportunities. A combination of both bridge and river created a chasm, and racial segregation further separated West Dayton from the downtown area to the east. By the 1960s, the Wright-Dunbar Village had emerged as one of the nation's most racially segregated communities, with an estimated 60,000 people living within a square half-mile.[128]

[128] "Sweigert, Josh. "Lasting Scars: Shooting sparked 1966 Dayton Riots." *Dayton Daily News.*

These racial policies had a lasting effect on West Dayton's neighborhoods, and unequal living conditions contributed to civil unrest and activism during the late 1960s. Dayton was not immune to the violence often directed toward African American communities in the United States. In the early hours of September 1, 1966, rioting and unrest broke out in response to the brutal, racially motivated murder of Lester Mitchell, a young African American man. The effects were devastating to the Wright-Dunbar Village, causing the permanent closure of businesses and the destruction of homes.[129] The riots, coupled with the City's aggressive demolition practices in the late 20th century, led to a patchwork density within the Wright-Dunbar Village. Analysis of abandoned or demolished sites and other, underutilized sites or structures depicts a neighborhood subject to serious trauma. A majority of real estate parcels in the Wright-

Figure 29: Vacancies within the Wright-Dunbar Village. Vacant lots have no structures present, while underutilized lots are occupied by deteriorated structures or damaged parking surfaces (Source: Author/Google Earth)

[129] "Sweigert, Josh. "Lasting Scars: Shooting sparked 1966 Dayton Riots." *Dayton Daily News.*

Dunbar Village may be categorized as 'vacant' or 'underutilized,' which describes historic but abandoned properties, parking lots, and other structures constructed with little consideration of appropriate scale or density for the mature neighborhood.

Though more than fifty years have passed since the lynching of Lester Mitchell, the historic neighborhood is still plagued by the continuation of racial and economic disparity. Despite major gains in civil equality in the United States, census data indicates that West Dayton remains one of the most-segregated metropolitan areas in the country.[130] Though the city's demographics reflect a diversity in population, census records the 'Innerwest' area show that roughly 96 percent of these western residents are African American, and most are younger than age 60.[131]

The city is beginning to pay more attention to the inequity previously caused in this economically depressed area. Dayton has worked to improve the area, providing bike-share access to the immediate residential areas, and diversifying the available housing stock. The recent re-branding campaign for the Wright-Dunbar Business District has also drawn some attention and development to the area, but in the very early states of progress. The lack of previous development should allow the City to 'get ahead' of the trends, and provide the polices and funding necessary to support *responsible,* equitable development of the Wright-Dunbar Village, preventing the displacement of current residents while promoting the growth of locally-focused businesses.

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[130] Brookings Institute analysis of Census Data, in Swigert.
[131] "Innerwest Priority Board." City of Dayton Department of Planning and Community Development. Revised November 2003.

One factor of note in the selection of Wright-Dunbar Village for a commercial development project was the low-risk status of the water supply. While Dayton has proven to be a flood-prone city, the Gem City Ice Cream Building survived even the devastating 1914 Great Flood.[132] Likewise, Dayton's location in relation to global climate also makes it favorable for the success of a water-reliant industry like craft brewing.

5.5 Revival of Third Places on the Third Street Corridor

The Wright-Dunbar Village suffers from a lack of informal public 'third' spaces. By January of 2019, there were only two business that fit Oldenburg's definition of neighborhood Third Places: a barbeque restaurant with a small bar and a soon-to-open hair salon. Other commercial entities serving the community include a bank, physician, insurance agency, pharmacy, convenience store, and auto-body garages. There is also another full-service restaurant under construction.[133] However positive, these businesses do not support a true, informal gathering place for the community or visitors which would sustain the community's social vitality. The National Aviation Heritage Park serves as a tourism anchor for the community, but presently there are few opportunities for visitor retention in the Wright-Dunbar Village.

One real estate developer active in the city's rehabilitation projects mentioned the lack of access to diverse, quality food options in West Dayton. Design trends have shown that multiple sources of food access, from grocery stores, casual cafes, to full-

[132] "How an Ice Cream Plant Stood Severe Test." The Creamery and Milk Plant Monthly, 2, no. 12. August 1914.
[133] Poturlaski, Hannah. "Wright-Dunbar Neighborhood gains momentum." *Dayton Daily News.* June 1, 2018.

service restaurants, improved the economic success of the neighborhoods they serve. Scott Murphy, vice president of economic development at the Downtown Dayton Partnership, shared that successful commercial endeavors were being driven on a local scale, but that their real estate research currently did not support the development of a grocery in the immediate commercial area of the Wright-Dunbar Village. Instead, he suggested to focus on the success of the recent food service developed in the Village, such as the rapidly popular barbeque restaurant on the Corner of Williams and W. Third streets.[134]

Creation of an interlinked collective of food and beer-oriented businesses could provide new sources of food and informal social spaces for the Wright-Dunbar Village. With no breweries west of the Miami River, the Third Street Corridor has great potential to support the type of social community and local focus which craft brewing naturally fostered. In addition to community, a brewery proposal in this area provides a new outlet for regional tourism linked to the National Aviation Heritage area and the Paul Laurence Dunbar Historic District. Evidence suggests that the Wright-Dunbar Village would respond well to the creation of new food and drink-oriented businesses; *Dayton Daily News* recently reported that lines were out the door for the Village's Texas Beef & Cattle Co. barbeque restaurant, and also mentioned significant developer interest in the historic neighborhood.[135] Likewise, with Wright-Dunbar Inc.'s January 2019 report of 100% lease occupancy, there are real signs of commercial growth.

[134] Murphy, Scott. Interview with Author. By Phone. March 29, 2018.
[135] Poturlaski, Hannah. "Wright-Dunbar Neighborhood gains momentum." *Dayton Daily News.* June 1, 2018.

Though this interest has not yet yielded high levels of tangible development, but will likely come to fruition within the next several years.

Chapter 6: Programming a Sustainable Brewery Collective

*"**New ideas need old buildings**."*

– Jane Jacobs *(1961)*

Jane Jacobs, the influential 1960s-era journalist, changed public views of the fields of urban planning and preservation. She was a leading advocate for the adaptive reuse of historic buildings with a community-driven focus. Her major work, *The Death and Life of Great American Cities*, shifted the United States from the socio-economic damage caused by the practices of *urban renewal.*[136] Despite the neglect post-industrial neighborhoods like Wright-Dunbar Village have endured for the past fifty years, there are positive signs of energy and interest both inside and outside of the community.[137]

The successful rehabilitation of an abandoned property is often sparked by depressed real estate values. However, the properties require serious investment, bold program proposals, and passionate stewardship, as well as policy and infrastructure support from local jurisdictions. Inclusive commercial revitalization, the desired goal for most historic districts in American legacy cities, also requires careful planning at multiple urban scales.

The development of a **sustainable craft brewing collective** – a group of commercial businesses which support the economic and environmental impact of their partner businesses – has great potential to reinvigorate a post-industrial site like the Wright-Dunbar Business District's northeast quadrant, roughly 184,000 square feet of vacant and historic space in which to situate a craft beer-oriented program that

[136] Jacobs, Jane. *The Death and Life of Great American Cities*. 1961.
[137] National Park Service, "Wright-Dunbar Village."

celebrates the neighborhood's legacy and place character. The brewery collective suits the duality of a residential neighborhood and a National Heritage park – providing a social space which will connect both tourists and residents to an energized Wright-Dunbar community.

6.1 Representation of Legacy in Building Program

In consideration of the importance that ***place character*** represented in the design and success of local craft breweries, a careful review of past property use, and other neighborhood legacies can positively influence innovative architectural programming. In a community which struggled at times to identify its own legacy, inspiration from historical figures and functions facilitated a program which represents a continuation of the neighborhood's legacy.

One important factor in the redevelopment of the Wright-Dunbar Village is the acknowledgement and elevation of African American heritage in the neighborhood. In keeping with the name, the site presented a unique opportunity to feature the work and legacy of Paul Laurence Dunbar and his literary contemporaries. Spaces which enabled literary and printmaking programming were encouraged in an innovative approach to the interpretation of Dunbar's legacy. His work and early news collaboration with the Wright Brothers also served as an inspiration to the final design elements of both brand identity and interior design elements of the brewery collective.

The existing architectural resources of the site also influenced the final program, in part due to preservation standards and goals associated with the project. The Gem City Ice Cream Building at one time held a bakery, ice cream parlor, office,

and as the name implies, a full-production ice cream factory. Before the factory, it held the Wright Cycle Exchange, and even hosted a yeast pitching house, another printing shop, photography studio and millinery (a hat-making shop). [138] Synthesis of these historic property uses indicates a heavy focus on the idea of "craft" – a specialized product made by individuals with passion for their product.

The earliest phases of design included evaluation of the physical condition and integrity of the site's historic structures. The main façade of the Gem City Ice Cream Factory is in fair condition, and could be easily rehabilitated using historic photographs of the storefronts and façade. However, the rear portion of the building, originally used for the production of ice cream, has fallen into serious structural and integral disrepair. Vandalism and decay have all but stripped the property of its glazing, and has put the building at severe risk. To contrast the deterioration of the Ice Cream Building, the adjacent commercial properties were documented to be in fair condition, though still deteriorated. Mory's Block, one of the earliest commercial buildings constructed in the early Miami City days, was utilized as a social hall, the 1800s equivalent to the modern craft brewery. This location would lend itself well to the reintroduction of a social, beer-oriented space.

The Midget Theater was developed as an early moving picture and proscenium theater, and featured a two-story screen fly house which carried to the northern lot line on French Lane. The space is unique, and if rehabilitated, would provide a public venue space for a community which has lacked such a space for many decades. Rehabilitation

[138] *Sources for the historical data included Sanborn Maps, Trade Journals, Getting the Story Wright Blog, and National Register of Historic Places nomination form. See Bibliography.*

of the Pryor building must retain the original retail and office-oriented focus, with the reintroduction of glazed storefronts similar to rehabilitation carried out by the National Park Service at 1032-1042 W. Third Street in advance of the museum construction.

The two other buildings, listed as intrusions in the historic district, both had businesses present during the 2018 site survey. However, the buildings themselves are not efficiently using the space they occupied, and are not compatible or sensitive to the existing historic buildings. While the buildings were slated for removal, new building program retains space for these successful neighborhood businesses. The vacant parcels of land associated with the project site included past property usage typical of the neighborhood, including single-family housing, a doctor's office, auto garages, and retail storefront. However, the vacant land and abandoned buildings serve as a new opportunity to develop an innovative, sustainable program at the northeast quadrant of the Business District.

6.2 Design Considerations for Craft Brewing

Another key consideration prior to programming is the consideration of craft brewery program and design. While much of the strength in craft brewery spaces is the integration of cooperative businesses and social outlets or events, there were also architectural trends in the types of spaces embraced by craft brewers.

Former industrial spaces have been successfully converted into breweries across the country and the state of Ohio because of their large, open floor plans and structural stability. As the spaces were constructed for commercial production, they have been adapted well to a new, yet compatible program. They can accommodate

sizeable brewing and conditioning tanks, which are set up in a linear fashion to facilitate streamlined production. Traditionally, brewers select spaces which may have significantly more space than is required by their production volume; this often allowed for the brewer to purchase new brewing equipment as the production scales increased. Proportionally, brewers invest in more *conditioning* or aging tanks and equipment, as the mash and boil capacity of brewing equipment can quickly outpace the volume of conditioning space. Generally, the largest barrier to increased brewing production was a balanced ratio between brewing and conditioning tanks; striking the proper ratio will allow a brewery to continuously have fresh product on hand for consumers. Brewer Reed Odeneal admitted that his own brewery had run out of beer twice during their first six months of operation, largely due to sales estimates which fell far short of the community's demand for their product.[139]

As the *process* of craft brewing is the paramount element of the industry, and the unique, 'character-defining' feature of the brewery social spaces, brewers have also chosen to integrate public taprooms or dining areas within the 'brewhouse.' Open, industrial spaces enabled the popularity of this trend, with brewers intentionally choosing industrial spaces due to their unique aesthetic qualities and exposed structural elements. Concrete, steel, glass block, and wood became the 'traditional' craft brewing material palette. Ohio breweries have opened in many types of post-industrial spaces, such as churches, dairies, warehouses, a foundry, a firehouse, and countless others.

[139] Odeneal, Reed. 2018. Interview by author. Pensacola. May 28.

Figure 30: Warped Wing Brewing in Dayton has embraced the aesthetics of their former foundry building. (Source: Author)

For craft breweries, the exterior environment is just as important to consider as interior taprooms and brewhouses. While some breweries like Dogfish Head (Milton, DE) have chosen to relocate to newly constructed facilities in rural areas, breweries in legacy cities have unique opportunities to explore creative exterior public spaces with history and character. Urban theorist Jürgen Hasse wrote about the use of urban brownfields in new design projects:

> "The ruin (for which the way is prepared, so to speak, by the decay of buildings) makes the constructedness of the separation of between interior and exterior obvious… This even applies to the separation between space and time, which is cancelled out in the ruin's atmospheric [presence]"[140]

[140] Hasse, Jürgen. "Brownfields – Characteristics and Atmosphere." In Baum/Kees 2012, 52-58.

Hasse's explorations of urban ruins highlights the connection of the built environment and nature caused by the abandonment of industrial spaces. This notion aligned well with the development with the craft beer industry, which favored connectivity of interior and exterior spaces. In brewery spaces like Dayton Beer Company, outdoor patios and parking lots were converted to a mock 'beer garden,' complete with hop plants and picnic tables. On a beautiful spring day, this space became more popular than the brewery's taproom, which was the traditional public consumption area of a craft brewery.[141] This trend tapped into the legacy of the German *biergarten*, which served as an urban oasis for all ages and genders in cities like Cincinnati.[142] Development of a brewery collective for the Wright-Dunbar Village relied on the large availability of vacant land to integrate this important spatial program of the craft brewing movement.

6.3 Integral Components of Proposed Program

The proposed revitalization project in the Wright-Dunbar Business District will create a community hub focused on the production and enjoyment of food, beer, and other craft beverages. The programmable area is approximately 184,000 square feet, with roughly a quarter (25%) of this area represented by non-removable historic building stock. The new program embraces urban brownfield sites, providing a revival

[141] Author visit, April 26, 2018.
[142] Appendix 1, A History of Brewing in America. This document, page 110.

of dilapidated architecture and vacant lots rather than a complete demolition and new construction project. These urban brownfield areas are well-suited for the development of limited urban agricultural spaces which can support brewing programs.

6.3.a Brewery Program

The first programmatic element is the small-scale brewery. Brewery capacity is not defined by the physical space of the brewhouse, but rather by the volume of beer produced. Based upon market factors and available building space, the proposed brewery space will be a *brewpub*, which includes the programmatic requirements of a full-service restaurant. The space breakdown for the restaurant would be one-third of the space devoted to kitchen and service functions, with the other two-thirds devoted to dining, front-of-house, restaurants, and access to the traditional tap-room bar that is a requirement of any craft brewery with direct distribution in place.[143] A larger space is provided than truly necessary for the total brewing equipment, for two reasons. The first is that a larger space provides easier maneuverability and equipment access, which would allow the equipment to be reconfigured or expanded as needed.

Altogether, the brewpub will be operated on the microbrewery scale (less than 15,000 bbl./year), the area dedicated to the brewpub program is around 15,000 square feet. The space includes extra fermenting and bright (conditioning) tank capacity to allow for beer to consistently rotate through, keeping the product fresh for consumers. Beer produced at this location will have a limited distribution network, and the

[143] Blecker, Phil. Interview with Author. By Phone. 4.5.2018.

program reflected the inclusion of smaller loading docks with easy access to W. Third Street.

6.3.b Brewery Guild Program

An extension of the brewery program is the inclusion of a new guild headquarters for the Ohio Craft Brewers Association, creating educational and collaborative environments for Ohioans to learn about and enjoy the brewing process. Though not the capitol city, Dayton is centrally located within three hours of five major midwestern cities, and within an hour each of Cincinnati and Columbus. Dayton also benefits from having a fledgling brewery industry, which would allow the success of a multi-faceted brewing program like the proposed Collective.

The proposed 'guild headquarters' program totals around 14,000 square feet, and will be located at the first and second floors of the existing Mory's Block building. Within that program is the inclusion of a small office program to support the limited staff and meeting capacity of the OCBA. The space would serve as a meeting area for city or state brewery tours and for classroom-style and collaborative educational events. In addition to the office program, the Guild headquarters could also feature an innovative 'test brewery.' This would mimic the open-plan of a full brew house, with small-scale commercial equipment (from 1 gallon to 5-barrel systems) which would be available for area home-brewers to rent for their own brewing experiments. Commercial equipment can be cost-prohibitive for many seeking to break into home-brewing; the guild space will provide one of the first of its kind in the state of Ohio.

6.3.c Multipurpose 'Biergarten'

In developing a truly unique social gathering place for the Village, the proposed brewery collective includes a significant, multipurpose outdoor public space totaling 11,000 square feet. Modeled from the German *biergarten*, this space recollects the traditions brought by early European immigrants who settled in the original Miami City suburb. The 'biergarten' features agricultural elements for demonstrative effect, including vertically grown hops plants and other brewing additions. The resulting space will provide a flexible space that encourages event programming such as live music or farmers markets.

6.3.d Retail Rehabilitation

The existing historic storefront spaces defines several retail opportunities on the proposed site. These food-oriented businesses include a bakery and a 'craft' ice-cream shop. Some of the existing historic space on the second floor of the Pryor building is allocated for the relocation of the insurance agency currently located at 1017 W. Third Street. By moving this space to the second floor, the tenant has access to a more traditional office layout, and the ground-floor space is opened for the biergarten program, which continues operation in the evening hours. This change allows the insurance agency to remain in a familiar location while activating the street level for commercial activity for more hours of the week.

The remaining storefront space should be devoted to general retail tenants, with a preference for local or minority-owned businesses. Two of the spaces are devoted to

a bookstore and printmaking shop, in honor of Dunbar's literary and the Dunbar-Wright press legacy. This portion of the project was inspired by the success of the Pyramid Atlantic Art Center in Hyattsville, Maryland. The center houses a non-profit arts collective that includes educational and retail spaces.[144]

Another neighborhood amenity to be reintroduced at the site is a small, 2,500 square foot post office. Originally opened in the 1960s, the post office building on site sits vacant.

By offering a variety of retail services, the overall program offers choices of neighborhood goods and services, reducing the need for automobile traffic in the district. Likewise, these retail businesses will rely on connections to the brewery program, creating a business collective on the site. The creation of a circular economy with these businesses will allow for sustainable operations and energy savings for the varied tenants expected at the site.

6.3.e Urban Agriculture and Hops Production

The remaining parcel of land bounded by Third Street, Sweetman Street, and French lane would be designated as agricultural spaces which directly support the craft food and beverage businesses in the Collective. This portion of the program includes a 0.4-acre experimental urban hops yard, which can be supported by state university programs or other commercial hops yards in the Dayton metropolitan area.

6.3.f Sustainable Support Systems

[144] "About Pyramid Atlantic." Pyramid Atlantic Art Center. May 20,2019.

The former Gem City Ice Cream Building proved to be one of the biggest challenges on the site. Since the City was denied demolition of the property in 2012, they have mothballed the project entirely. Existing structural damage and vandalism transformed this portion of the site into an architectural ruin. Rather than investing massive sums of money to perfectly rehabilitate the project for use as an office or retail space, the brewery collective will instead embrace this structure for use as a sustainable infrastructure hub. The space would include 16,000 square feet of various innovative sustainable technologies, including water filtration and treatment, anaerobic digestion, and hydroponics, which would enable the creation of a circular economy between the Collective's several businesses.

6.3.g Laneway Housing Program

In order to facilitate the diversification of housing stock in the Wright-Dunbar, a small, 'laneway' or mews-style housing program along French Lane would allow for increased housing density and diversity to return to the site. In the spirit of Paul Dunbar, these lofts would be geared towards creative writers or artists looking for a studio-living space in which to work and be inspired by the place and legacy of a historic neighborhood. The program for these spaces is directly inspired by the successes of laneway housing programs in Vancouver and Toronto, which have been approached through both design and policy-based strategies.[145] This program is limited to the northeast block of the proposed site, and would total no more than 28,000 square feet

[145] "Laneway Housing How-To Guide." City of Vancouver, October 2018. Accessed May 2019.

of space. Development of the architectural language and policy components were not considered under the scope of this thesis, and would require further investigation by the city's Department of Planning and Community Development.

6.4 Urban Revitalization at Three Scales

Design projects in legacy cities have proven to be successful when careful support for programs are integrated at multiple 'levels' of the city. A positive example of this success resonates in present-day *transit-oriented development* (TOD) approaches. Cincinnati, another post-industrial city in Ohio, successfully constructed a new public transit streetcar route along high-traffic thoroughfares in the downtown region. The proposed project has the potential to link downtown neighborhoods to the riverfront amenities, and advanced the rehabilitation of historic third places which had fallen into disrepair and disuse.

This energized example inspired the concept for a positive, responsible urban design project for the Wright-Dunbar Village. However, limited transit connectivity and lack of neighborhood services and amenities had previously hindered the true revival of the Village. In order to financially sustain the projected increases in residential, retail, and commercial resources of this project, there was also consideration for how this project might be affected and effect development at three different scales – the city, the district, and the site.

First, the Wright-Dunbar Village is just a microcosm of the greater Dayton metropolitan area. While East Dayton has more developed commercial properties, West Dayton is comprised of majority residential and health resources. The

construction of I-75 severed the transit connectivity of the neighborhood: a poorly-lit, six-lane underpass created an intangible wall between West Dayton and the downtown area. Dayton invested in an extensive bike share system, but their recommended route to the Wright-Dunbar Village did not utilize the Third Street corridor, instead recommending that cyclists travel an additional one and a half miles along 4th Street.[146]

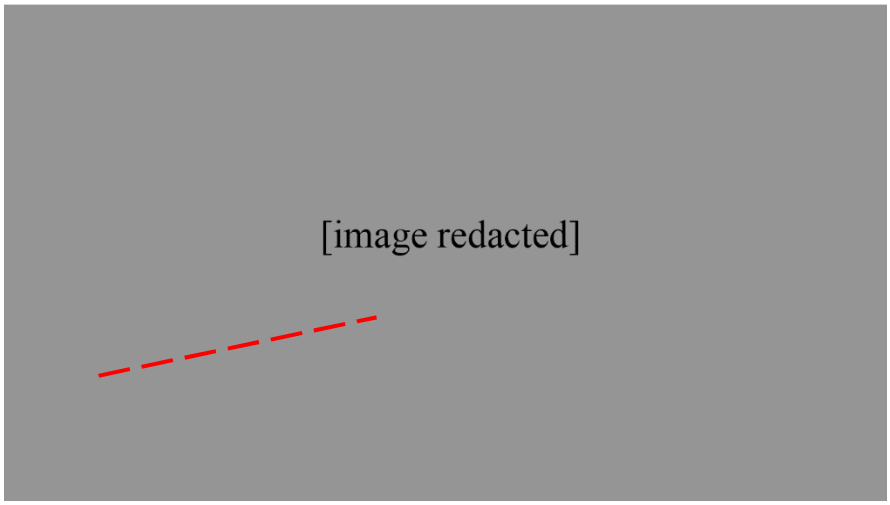

Figure 31: Link Bike Share Map. Recommended Routes shown in Green and Yellow. (Source: Link Dayton)

Creation of this route reinforced the fact that the Third Street bridge was not pedestrian friendly. The city has begun work on improvements designed to increase access to the Miami riverfront, and has initiated a project for the complete replacement of a pedestrian and cyclist-friendly West Third Street bridge.

In terms of bus transit access, there is only one bus line that services the Wright-Dunbar Business District. Development of the project's urban planning included

[146] *Link Dayton Bike Share*, 2018. www.linkdayton.org.

considerations for the necessary improvements to this vital connection to the downtown area.

6.5 Vertical Landmarking

One important element of the site program is the consideration for increased awareness of the Wright-Dunbar Village. As it stands, there is no vertical landmark or tall structure which could attract attention from high-speed traffic on Interstate 75 or for residents and visitors within the Wright-Dunbar Village. Historically, the Gem City Ice Cream Factory included a smokestack, which would have been visible from the surrounding cityscape.[147] While this historic smokestack is no longer in existence, the industrial legacy could be renewed through the reintroduction of a new vertical wayfinding landmark within the brewery collective.

Urban design theorist Kevin Lynch defines landmarking as one of his five major elements which determine the image and identity of a city. Lynch describes these elements as critical for an individual "to operate successfully within his environment his environment and to cooperate with his fellows." [148] He defines landmarks as points of reference within the city, singular and easily recognizable in nature. Strategies for landmarking he outlined include creating visual prominence through verticality or through contrast.[149] This methodology highlights the disadvantage in image that faces the Wright-Dunbar Village – with no uniquely contrasting structures or vertical

[147] Yanney, Matt. "The Gem City Ice Cream Building and the First Wright Cycle Shop." Getting the Story Wright. December 14, 2014. Accessed June 26th, 2018.
[148] Lynch, Kevin. *The Image of the City*. Cambridge, Mass: MIT Press, 1960. Pg 46.
[149] Lynch, 80.

elements, the strategy of landmarking is not achieved. Though the site presently includes a vernacular billboard, the height of which his consistent with the one- and two-story buildings in the immediate vicinity. The billboard lacks height and contrast, reducing its prominence as a visual landmark. Reintroduction of a visual, vertical landmark can benefit the visibility of the Wright-Dunbar Village.

Aligning with the urban trend for breweries to include larger outdoor ingredient storage, such as water towers or grain silos, the site will include one of these features. The inclusion of a vertical element on the site will also contribute a landmark for pedestrians and cyclists within the Wright-Dunbar Village. Locating the new landmark in a way that aligns with the corridors of Shannon and Third streets will provide emphasis on the site as a new destination within the Village.

Figure 32:Massing from Shannon Street, view North (Source: Author)

Chapter 7: Design Approach and Strategies

The design of this thesis requires a careful balance of the treatment of vacant brownfields and existing, historic resources. Due to their significance as contributing resources to a National Register District. The proper rehabilitation of the four historic structures on the site became the first step of any design solution on the project site.

7.1 Rehabilitation Strategies

To create a template for appropriate rehabilitation and new construction on the proposed site, this thesis frames a series of rehabilitation strategies that are informed by accepted practice in the field of historic preservation, urban planning, and architectural designs. These strategies are as follows:

1. *Create New Urban Node and Landmark*

   Upon review of Kevin Lynch's research on how people interact with urban spaces, there is glaring evidence of the lack of a concentrated node within the Wright-Dunbar Village. However, the proposed thesis site lies at the crossroads of two major arterial streets in the Village, and sits directly adjacent to a National Park Service museum site. Development of this site will revive the commercial node of the past, while sustaining the economic future of the Village.

   Creation of a vertical element within the boundaries of the site will help to elevate visual connections and overall identity of the site. Currently, the most vertical element within the Wright-Dunbar commercial district is the presence

of an advertisement billboard roughly 40 ft high. This thesis proposes the removal of these non-historic billboards and replacement with a more prominent visual landmark.

2. *Remove Non-Contributing Structures*

On the identified site, there are several structures listed as non-contributing in the West Third Street National Historic District: there are two existing structures, two broken parking slabs, a billboard structure, non-historic fencing, and electrical posts. Under the Secretary of the Interior Standards for the Treatment of Historic Properties[150], non-contributing buildings are not eligible for historic tax credit programs. The existing structures – the post office and the insurance office - are not sympathetic in scale or material to the historic, contributing resources on site. For the purposes of increasing the efficiency and program potential at the site, this thesis proposes the removal of these non-contributing resources and to relocate some of the existing functions into historic retail spaces on site.

[150] National Park Service, https://www.nps.gov/tps/standards.htm

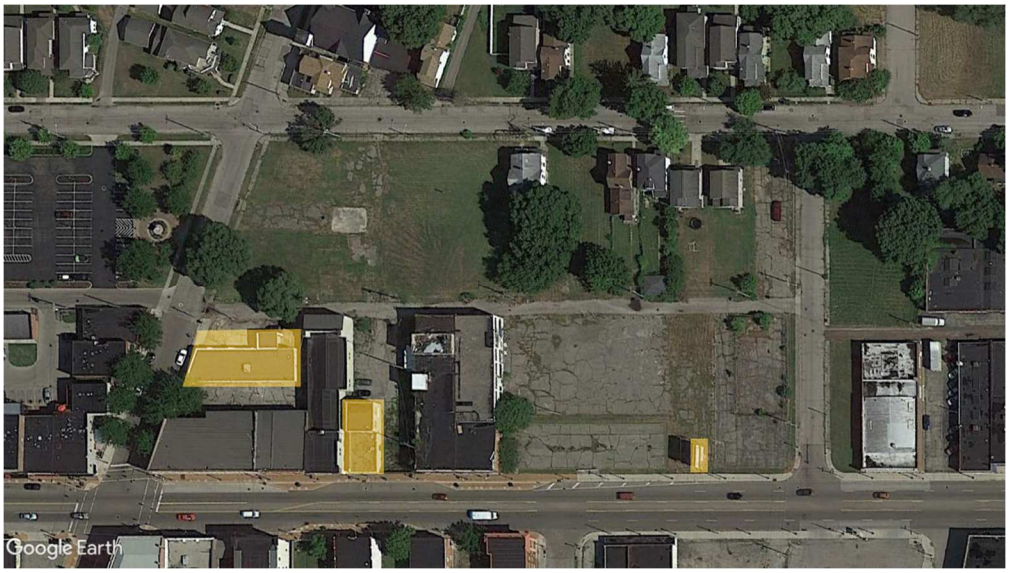

Figure 33: Non-Contributing Structures on Site. (Source: Google Earth)

3. *Replace Missing Elements In-Kind*

   Each of the historic buildings on the existing site is in poor condition, and is missing a significant portion of the historic storefront. However, the major character-defining features are still present (i.e., structural bays, brick sills, and columns). SOI Standards give a straightforward design 'road map' for the repair and repointing of historic masonry, and for the reinstallation of new storefront and second floor glazing.

   Though most interior elements are no longer intact in any of the historic buildings, these SOI Standards were influential to the selection of glazing, material palettes, and other interior elements for the new brewpub program.

4. *Increase & Diversify Housing Stock*

One of the biggest challenges of residential development in the Wright-Dunbar Village is the lack of neighborhood amenities needed to attract developer's dollars. In 2017, a development plan proposed by the city fell through when there were no developers who responded to the issued Request for Proposal.[151] The northern block of the proposed thesis site currently includes five existing houses of both historic and new construction. This portion of the site included small, multi-family and affordable laneway apartments, as well as the redevelopment of the existing, yet defunct recreational amenities (the open green space and the basketball hoop).

5. *Reconnect Interior and Exterior Spaces*

There are many positive aspects of reconnecting interior spaces with nature and the outdoors. The Living Building Challenge, one of the most comprehensive green building certification systems, highlights 'human connection to nature and place' as one of the system's "20 Imperatives" for equitable, green building design.[152] Current trends in brewery and bar design include the embrace of operable facades to promote indoor and outdoor connections. These types of structures increase air and light flow into a building, and can improve quality of life. Olson Kundig Architects is one firm that blurs the lines between the built and natural environments, and their designs utilize highly visible,

[151] Frolik, Cory. "Zero takers for 30 Properties in the Wright Dunbar Village".
[152] Living Building Challenge. https://living-future.org/lbc/

mechanical components to create operable facades.[153] This design strategy is very compelling when considering a site with an industrial legacy like the Gem City Ice Cream Factory. Use of operable facades to facilitate the indoor-outdoor connections with the biergarten space will help to elevate the intangible heritage of the site. The final design of the bar also emphasizes the visual connection between exterior and interior spaces.

6. *Reintroduce Informal, Social Spaces*

The culmination of architectural solutions requires focusing programmatic design on the reintroduction of social spaces oriented around crafted food and beverages (i.e. restaurants, coffee shops, taprooms, etc.) This approach was twofold: one, to reintroduce some of the historic businesses on site, and two, to introduce the new brewpub program within the Gem City Ice Cream building.

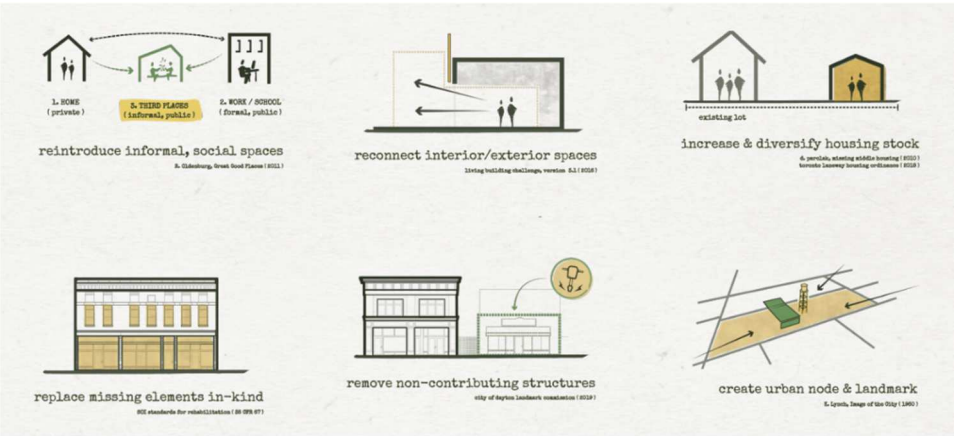

Figure 34: Rehabilitation Strategies for the Wright-Dunbar Craft Collective (Source: Author)

[153] "Projects." Olson Kundig Architects. Accessed May 21, 2019. https://olsonkundig.com/

7.2 Location of Agricultural Program

There were two clear locations for rehabilitating urban brownfields for the agricultural elements of the brewery program. The first is the vacant parcel bounded by French Lane, West Second Street, and North Williams Street. Location A totals around 42,000 square feet (Figure 36). The second location is the vacant parking lot bounded by French Lane, West Third Street, and North Williams Street. Location B totals around 45,000 square feet. Though both locations have plenty of access to the light and air requirements that hops crops require for maximum efficiency, location B has the added factor of public visibility along the Third Street corridor. For that reason, location B was selected for the final location of the hops yard and greenhouse program. The prominent 'first look' into the site is intended as a visually compelling component of the Collective.

Figure 35: Potential Agricultural Locations (Source: Google Earth)

7.3 Spine Development

One of the technical requirements for brewery design is the distribution of water, beer and glycol piping from the brewing, fermenting, and serving areas. An early design decision made in this thesis project was the consolidation of the distribution of mechanical, electrical, and plumbing systems within a centralized distribution 'spine'. Much like the design of piping layouts at refineries and other industrial sites, the design incorporates a regular 'pergola' structure which supports a series of piping throughout the length of the site. The structure also organizes a clear lane of circulation for both brewery employees and the various industrial equipment needed for the brewery and hops yard, including forklifts and scissor lifts. The average clearance heights of forklift and scissor lift fits within the structural grid of the Gem City Ice Cream Factory. The pergola design would stretch through the entire site, and would only minimally impact the integrity of the rear portion of the Midget Theater, which carries little of its original historic integrity due to changes made as the Salvation Army gym in the 1950s.[154]

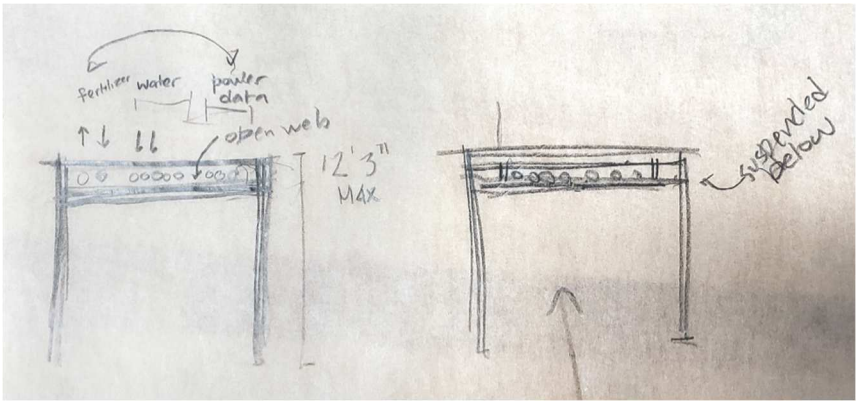

Figure 36: Pergola Sketches (Source: Author)

[154] NRHP Reference no. 88003194.

7.4 Design Approach

In planning a modern, industrial space, a logical parti diagram was distilled from the intrinsic, linear process of craft brewing. By overlaying the craft brewing process onto the existing historic spatial conditions of the West Third Street site, a natural procession through the commercial site became evident. Beginning with the growth of hops and working through brewing, fermentation, conditioning, and distribution. With the final location of the hops yard being located at the southeast corner of the site (Location B, Figure 37), the direction of the process is mirrored as east to west, traveling from the hops yard at Sweetman Street to the western extents at North Williams Street.

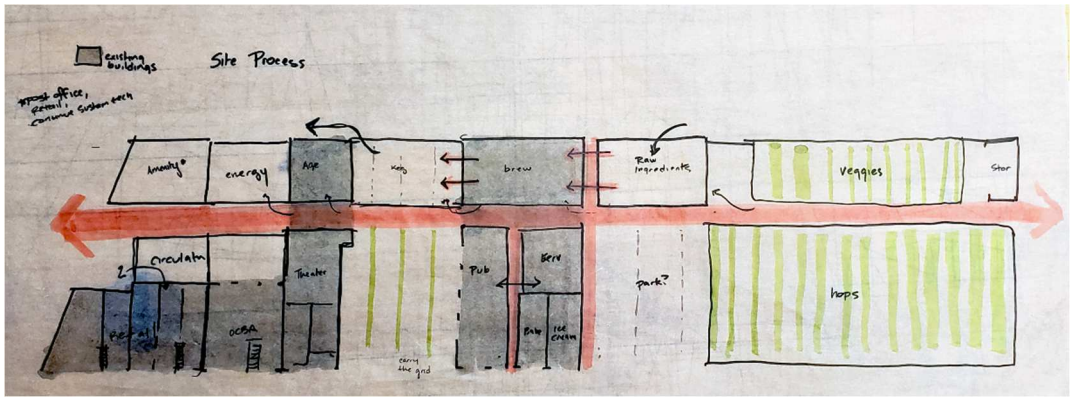

Figure 37: Brewing Scheme overlaid onto Site Parti Plan (Source: Author)

The diagram of process on site also showed a natural orientation of businesses, giving rise to two potential schemes for the final brewery location. Both schemes were oriented with the multipurpose 'biergarten' located in the cavity between the theater and factory buildings. The implied grid of the resulting biergarten is intended to serve as a continuation of the hops yard grid. The first scheme was the complete rehabilitation of the Gem City Ice Cream Factory building as the brewery program. (Figure 38) The second was the new construction of a brewhouse on the site of the former post office structure, which integrates the taproom function in the historic storefront of Mory's

Block. (Figure 39) The reason for this schematic design was to revive the historic function of Mory's Block as a social hall for the community.

Figure 38: Brewery Location 1. Biergarten Location in Yellow (Source: Google Earth)

Figure 39: Brewery location 2. Biergarten location in Yellow. (Source: Google Earth)

Ultimately, the first scheme was determined to be the best solution for the site. With the complete rehabilitation of the Gem City Ice Cream Company factory building,

the industrial legacy of the site has been revived, and the use allows for an interesting dynamic between the historic factory structure and the new framing of the biergarten structure. The remaining space within Mory's Block is then able to be utilized as another social space for the neighborhood. In the selected scheme and the historic legacy as a bar, this location was well-suited for the new location of the Ohio Craft Brewers Association guild space.

Chapter 8: Final Design Proposal

The Wright-Dunbar Craft Collective

The final design for the Wright-Dunbar Craft Collective reflects the focus on crafted food and beverage and the elevation of brewing's agricultural components in the public eye. The heart of the thesis design is the brewery-biergarten program, which forms the central component of the southern block of the site. The brewhouse includes the construction of a new *oast* house for the processing of the raw ingredients for the brewing process – hops, malts, yeast, and water. A permeable parking lot with green elements can be utilized for flexible outdoors programming.

Figure 40: Aerial Perspective of the Wright-Dunbar Craft Collective. This rendering shows the new components of the site as integrated into the existing structures. Of note: the hops yard, water tower, biergarten, and pergola. (Source: Author)

Figure 41: South Elevation, West Third Street Facade. (Source: Author)

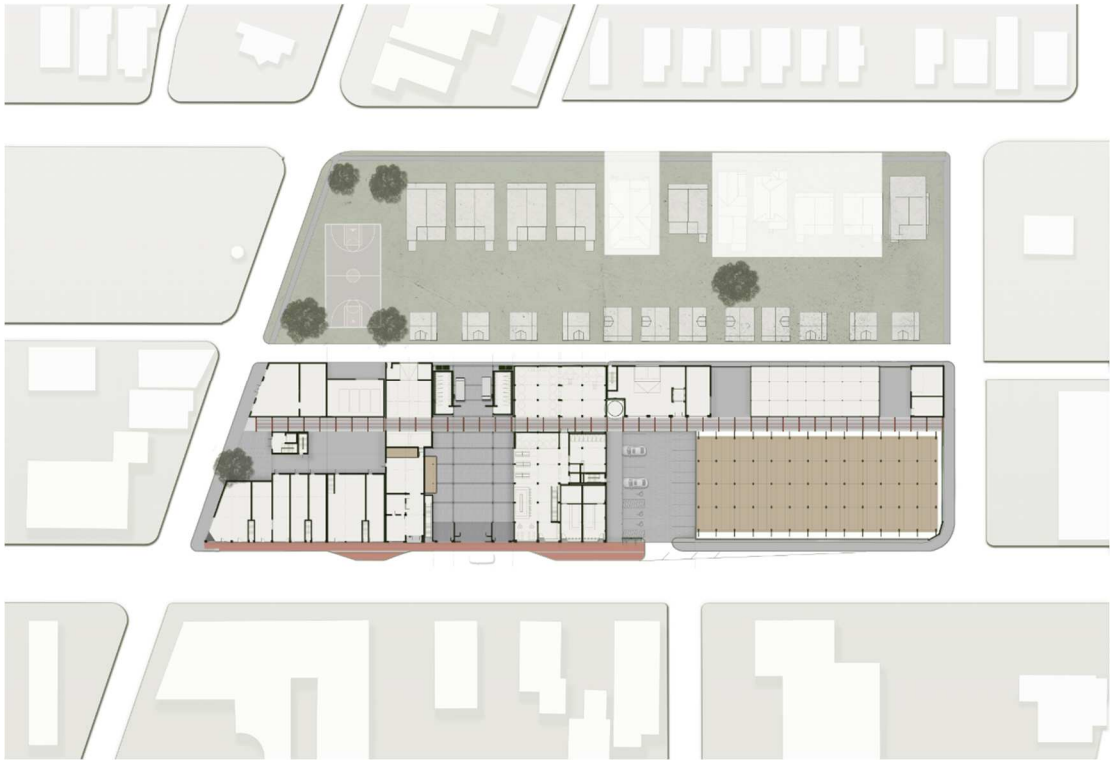

Figure 42: Enlarged Site Plan (Source: Author)

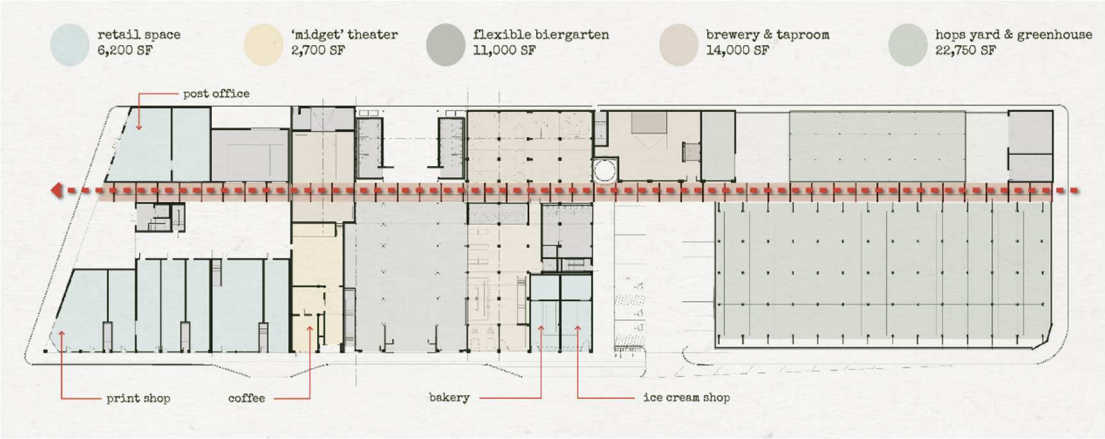

Figure 43: First Floor Program of the Site. The Distribution Spine is highlighted in red (Source: Author)

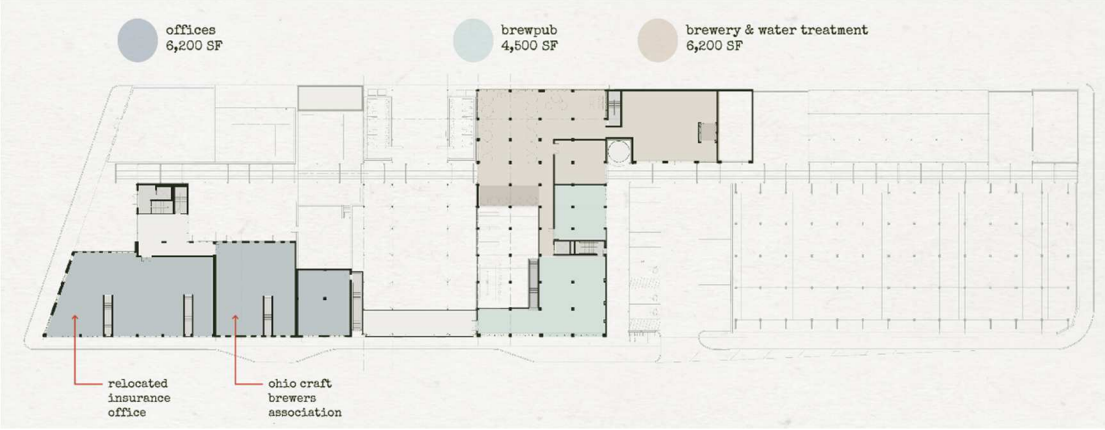

Figure 44: Second Floor Program (Source: Author)

The brewery program includes both two and one-story spaces in the Gem City Ice Cream building. The first floor serves as the host/waiting area and the more public taproom, and the upstairs level includes a kitchen and dining room.

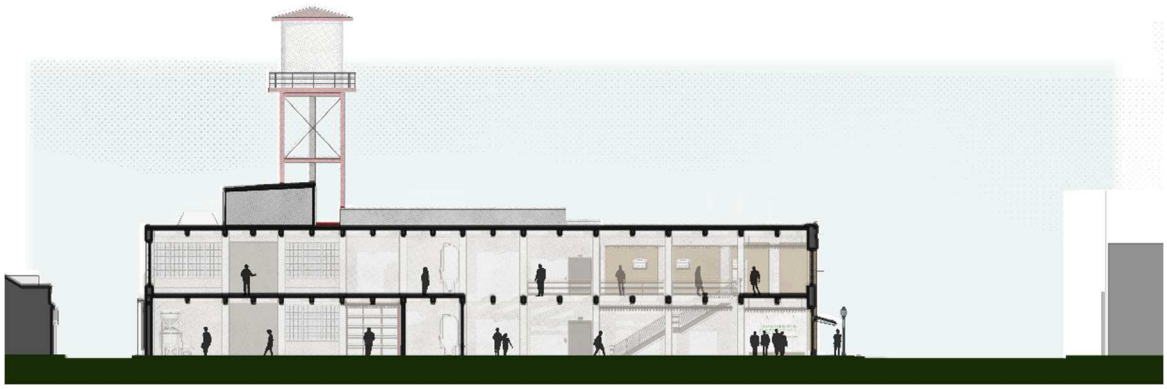

Figure 45: Section through existing building Structure. (Source: Author)

Figure 46: Interior Views of Bar and Brewery. (Source: Author)

8.2 Biergarten Design

The façade scale design of the biergarten was drawn directly from the scaling of the historic masonry façade of the Gem City Ice Cream factory building. The design is meant to promote air flow and facilitate connections between the public streetscape and the public garden spaces. The structural frame is designed on an A-AA-A bay pattern, and supports a simple two-way truss system. The column system serves as a

structural base for ivy vines, supported in a similar style to the ‘V’ system of the hops trellis. The roof is sloped towards the spine to move rainwater drainage towards the spine.

Figure 47: Biergarten Facade at Third Street, with Water Tower in the Background. (Source: Author)

Figure 48: Section through Biergarten Structure (Source: Author)

The bar of the brewery taproom services both the biergarten and the brewpub. (Figure 49) The two-sided design includes an open tap rail and pass-through shelving for pint glasses and other bar wares. The wide work areas allow for the inclusion of necessary coolers and prep areas. Drainage and slight sloping of the biergarten floor allows for easier cleaning of the floor surfaces. The patterning of the floors also emphasizes the biergarten structure.

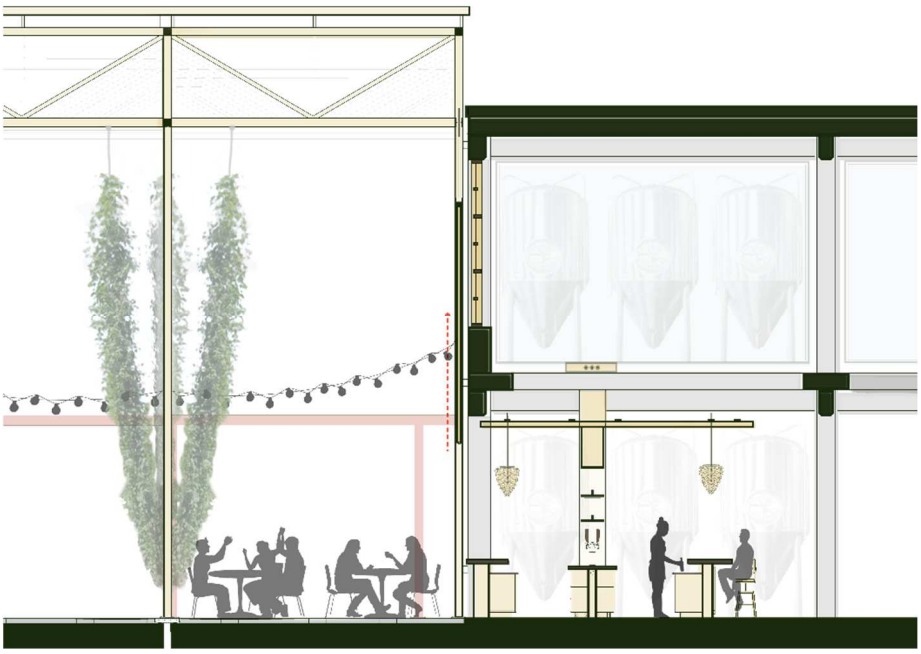

Figure 49: Detail section through the Brewery bar and Biergarten Structure. (Source: Author)

8.2 Structural Interventions at the Gem City Ice Cream Co. Building

To insert the brewery and taproom programs into the existing factory structure, several series of structural interventions are necessary. Some brewing equipment can exceed the existing 12-foot floor levels within the existing factory building. Due to the condition of the building, there are portions where the removal of the floor slabs is justifiable. To allow for code-compliant fire stairs and elevators, the removal of some beams will also be necessary. Finally, the design of the biergarten structure is at a sympathetic scale and design to the existing concrete bays.

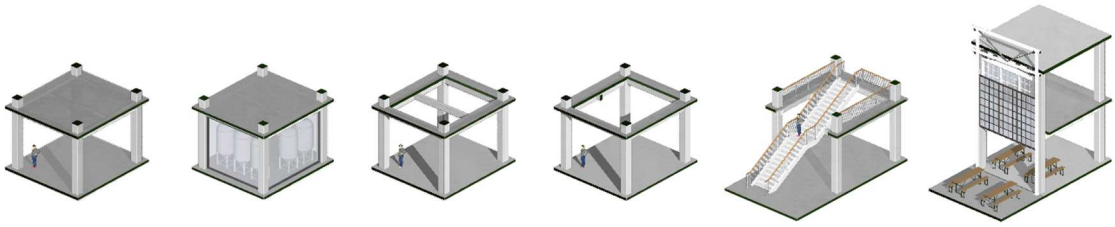

Figure 50: Structural Interventions (Source: Author)

8.3 Pergola Detailing

The pergola design for the distribution spine was directly scaled to fit within the 12-foot concrete structural bays of the Ice Cream building. With a regular, steel-frame construction inspired by the vibrant visual language of Bernard Tschumi's architectural installations of the *Parc de la Villette* in Paris, France. The striking red powder coated coloring and the clean stainless-steel piping allows for a clear reading of spine that is distinct from the historic masonry and the new construction of the oast (hops) house, post office, and the biergarten structures. It also gives a visual regularity to the only constant design feature of the site, tying the whole program together.

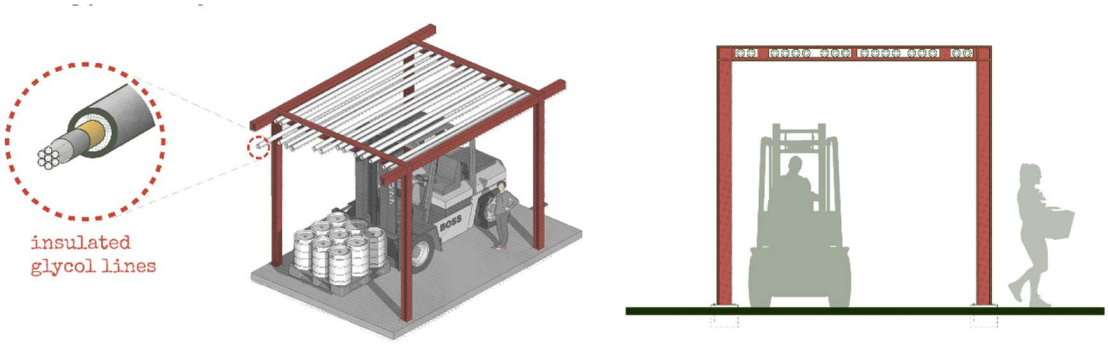

Figure 51: Pergola Elevation and Detail (Source: Author)

The structure is also the basis for the water tower structural design. Inspired by the typology of early 20th century water tower structures of the Midwest, the new water tower is located centrally to the brewery program.

Figure 52: Perspective View of the Spine, looking West. The spine allows brewery owners to accommodate tourism components of the program, and allow public educational opportunities for the hops yard and brewery. (Source: Author)

8.4 Operable Façade and Hops Trellis Design

A portion of this thesis project explores the ways in which architectural interventions can help sustain legacy. In terms of the design of the hops trellis and the operable façade elements at the biergarten, utilizing wheel and cable-driven systems can invoke ideas of bicycle chains, manufacturing belts, and printing presses – all important components of the Wright-Dunbar legacy. The trellis design allows for cables to be tensioned in a way that accommodates the growing weight of hops plants as they grow from April to October.

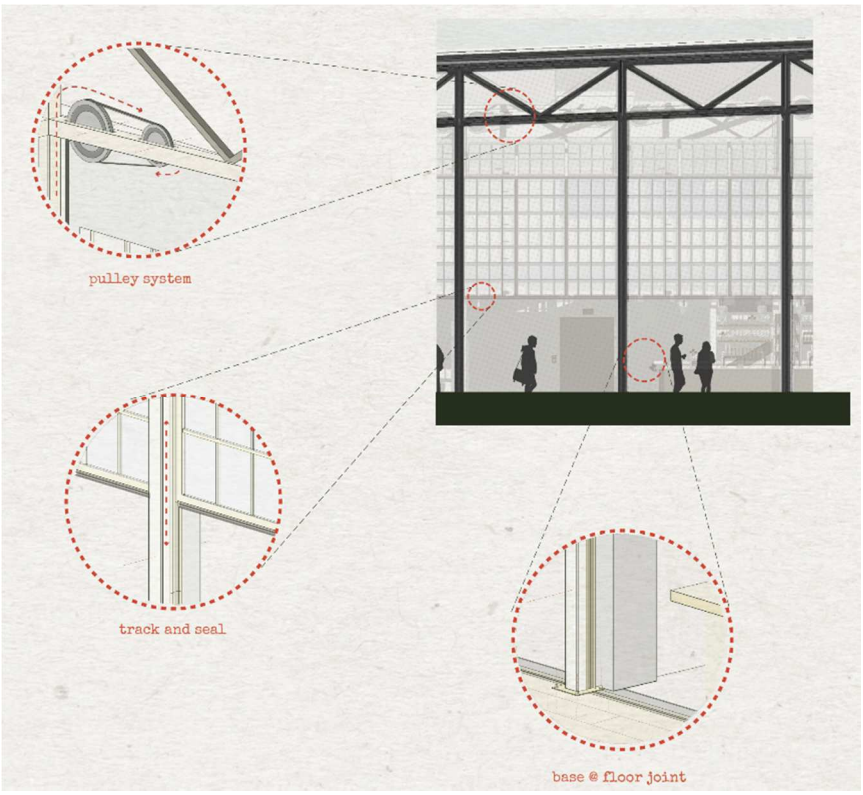

Figure 53: Operable Facade Details (Source: Author)

Figure 54: Hops Trellis Perspective at the corner of West Third and Sweetman Streets. (Source: Author)

8.5 Brand Identity

A major component of successful craft breweries is the development of a strong, cohesive brand identity.[155] For the Wright-Dunbar Craft Collective, the overall branding and components are not within the scope of this thesis; but some thought was given to the potential influences of history and legacy which could contribute to the overall brand. The site program represents the intersection of industry and legacy – in this case, the agricultural heritage combined with the industrial legacies of the Wright Brother's and Paul L. Dunbar's early printing careers. By combing the design aesthetics of the Art Nouveau movement of the early 20th Century with elements of brewing and printing, a compelling logo and brand can be developed.

Figure 55: Proposed Logo Design for the Wright-Dunbar Craft Community (Source: Author)

[155] Daniel Jr., Emory S, in Adam Tyma, Ed. "Tapping into Identity." *Beer Culture in Theory and Practice,* 81.

Chapter 9: Conclusion

Ultimately, this design proposal is just a first foray into the potential development of this unique, historic site. The development of the craft collective program is meant to be a bold solution to a preservation failure. The City of Dayton may be at a loss for the treatment of the Gem City Ice Cream Building, Midget Theater, Mory's Block, and Pryor Building, but a public-private partnership between the city, private developers, and non-profit organizations could provide a critical social infrastructure for the Wright-Dunbar Village. The solution can also be a potential roadmap for other vacant or neglected historic 'main streets' across the midwestern United States.

Any future of the Wright-Dunbar Craft Collective would need to balance economic and policy support as well as some further design development. At the spring thesis review on May 15, 2019, members of the jury discussed design revisions to the parking lot and hops yard which could better promote the outdoor social spaces on site. Likewise, more exploration and focus on the development of affordable housing solutions for the existing residents of the neighborhood is definitely required. Jurors expressed how housing can uplift the existing population and offset some the possibility of aggressive gentrification in the Village.

A project of this scope also has several potential lines of funding that could support rehabilitation of historic structures and the development of new market areas in the Wright-Dunbar Village. Federal historic tax credits are supported by the Ohio

Tax Credit Authority, and urban farm grants could support the urban agricultural elements of the program.

In the end, I hope that this thesis project sparks interest and creative debate in the future of the Wright-Dunbar Village's commercial center, and hope that these significant structures will be rehabilitated and sustained for future generations.

Appendix 1: A History of American Craft Brewing

> *" Will you be so good as to desire Mr. Hare to have, if he continues to make the best Porter in Philadelphia, 3 gross of his best put up for Mount Vernon?"*
>
> – Tobias Lear, on behalf of President George Washington *(1790)*

The art of brewing is deeply engrained in the social fabric of United States history and culture. Larger trends in marketing, distribution, and manufacturing in America affected breweries and other social spaces related to the consumption of alcohol. Development of the beer industry affected the cultural heritage of the United States, from Prohibition to present-day sporting events. Brewing continues to impact communities around the country in present day.

Many decades before any European settlers ever established themselves in North America, Native American populations were brewing different types of fermented beverages from corn and other agricultural staples of their respective regions. When English settlers founded the first colonial city at Jamestown, they brought with them a healthy appreciation and reliance on beer. Settlers learned how to brew ales from the local Native populations, and the first shipment of English-made beer to Jamestown occurred in 1607.[156] Around this time, advertisements were posted throughout London, searching for brewers to move to the New World, many of whom eventually made the journey. Breweries and taverns were established in colonial cities, from New York to Boston to Philadelphia. During the 16th and 17th centuries,

[156] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 1.

fermented beverages like beer, cider and rum were safer to drink than water.[157] The boiling process and added ingredients killed cholera and other disease-causing organisms. This reliance on fermented beverages for hydration led to an almost reverence for these drinks at mealtimes.[158] Around this time, a specific style called 'small' or 'near' beer of a low alcohol content was brewed to meet the needs of safety and hydration. This 'small beer' was even enjoyed by General Washington, who published his own recipe in 1757 during the French and Indian War.[159] Washington's recipe relied on a high amount of molasses to otherwise sweeten the taste of a quickly-brewed, cheaply-made beverage. American families and troops alike relied on small beer as an "occasional substitute for water." As such, beer and ciders were included in the rations of Revolutionary militia men. Finer beers of higher alcohol content were usually reserved for the elite, who could afford to import beverages and higher quality ingredients. Beer became more than just a substitute for water – it became a social fixture at gathering places across the land. The consumption of beer was expected in most social settings. Refusal of a

[image redacted]

Figure 56: George Washington's Small Beer Recipe (1757). Courtesy of NYPL

[157] Barr, Andrew. *Drink: A Social History.* (New York: Carroll & Graf Publishers, Inc, 1999), 205-206.
[158] Barr, Andrew. *Drink: A Social History.* (New York: Carroll & Graf Publishers, Inc, 1999), xi.
[159] Thompson, Mary V. "Beer." George Washington's Mount Vernon. (Accessed March 26, 2018).

beverage "was, at best bad manners, at worst an insult," [160] and the consumption of beverages was welcome for both men and women.

An important facet of American brewing heritage is that brewing was originally not a gender-exclusive activity in the early days of America. Brewing became one of the many tasks that a housewife would manage as part of her duties to her household and family. The first 'Brewster,' or female brewer, in America was Mary Lisle, who served the city of Philadelphia at her Edinburgh Brewhouse during the early days of the 18th Century.[161] When trade with England was cut off at the onset of the Revolutionary War, Americans relied on home-brewing to produce malt liquors and beers that they so appreciated. Attempts by the British Empire to throttle the importation of molasses and fine wines caused alcohol to become a symbol of American independence.[162] During this period, more taverns and breweries opened across the Thirteen Colonies than ever before. As America became consumed by the fight for independence, Washington and his other founding father counterparts continued to rely on brewed beverages to boost morale. Following the conclusion of the Revolutionary War, Americans retained their own brewing industry. Beer was often available at Washington's own table, with a grandson sharing that the General had often "drank a home-made beverage" at mealtimes. Martha Washington was largely responsible for overseeing the production of home brews at the Mount Vernon Estate, which were served to both the residents, staff, and slaves living on the property.[163] As

[160] Rodabaugh, W.J. "A Nation of Sots." *The New Republic (September 29, 1979),* 1-2.
[161] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 1.
[162] Barr, Andrew. *Drink: A Social History.* (New York: Carroll & Graf Publishers, Inc, 1999), xi.
[163] Thompson, Mary V. "Beer." George Washington's Mount Vernon. (Accessed March 26, 2018).

President, Washington had a documented love of the porter style, even incorporating the beer into his 1789 "Buy American" policy during his Presidency.[164]

However, beer remained one of the less-popular drink options in America. According to historian Maureen Ogle, "In the early nineteenth century, the only beer Americans knew was English-style ale, brewed in the states since colonial days but never as popular as cider or spirits."[165] Drinks like ciders, whiskeys, and brandies were easier to produce than beer, and they became more popular with working class Americans. New drinking habits brought to America by English, German, and Irish settlers and immigrants became a social staple of American culture in the 1800s. According to sociologist Ray Oldenburg, American society relied on the existence of a **"*third place*"** – largely informal gathering places outside of the home or workplace where people could socialize, relax, and "live good lives in good cities."[166] Informal gathering places were varied in type and function, and provide for inclusive, local communities. ome of the most lasting and popular, although not well-respected, of these are places which celebrate alcoholic beverages. These are the taverns, saloons, and pubs found in nearly every American city. The cultural trends of drinking were further enhanced with the

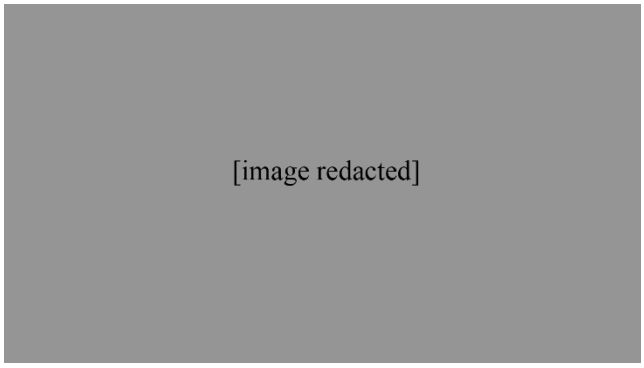

Figure 57: Patrons of a St. Louis Beer Garden, enjoying a sense of "Gemütlichkeit". Courtesy of Historic Memphis.

[164] Thompson, Mary V. "Beer." George Washington's Mount Vernon. (Accessed March 26, 2018).
[165] Ogle, Maureen. *Ambitious Brew: The Story of American Beer.* (New York: Harcourt, Inc, 2006), 15.
[166] Oldenburg, Ray. *The Great Good Place.* (Philadelphia: Da Capo Press, 1999), xvii

arrival of German immigrant populations. German-American culture readily embraced the social aspects of beer brewing and drinking. The immigrant population, largely centered in western cities like Dayton and Cincinnati, Ohio, brought along a social tradition of drinking "that could be implemented daily without danger, disruption, or risk of failure."[167] They introduced many new places of social drinking, like *bierstuben* (taverns), breweries, and the German *biergarten*, or beer gardens. These immigrant communities created cultural districts like Cincinnati's Over-the-Rhine neighborhood or Columbus's German Village. These districts often had several family-owned and operated breweries and taverns, which allowed German communities to gather and find relaxation and 'merriment.' The German immigrants in America also brought with them the *lager* style of beer – a crisp, refreshing brew which rapidly became the most popular style of beer in America.[168] Ultimately, German communities embraced the concept of ***Gemütlichkeit*** – a warm, inclusive environment which builds relationships between generations, genders, and economic groups. Americans who visited these beer gardens noted that patrons were well-composed, friendly, and indulged "in their lager rationally, even when they seem to carry indulgence to excess."[169] This ability to handle alcohol in a responsible manner was respected, but unfortunately not present in many American drinking establishments.

[167] Oldenburg, Ray. *The Great Good Place.* (Philadelphia: Da Capo Press, 1999), 95.
[168] Stack, Martin L. "A Concise History of America's Brewing Industry." The Economic History Association. (July 4, 2003), 13.
[169] Oldenburg, Ray. *The Great Good Place.* (Philadelphia: Da Capo Press, 1999), 93.

Renewed fear of the 'demon drink' in the early to mid-1800s gave rise to the Temperance Movement. Social organizations against alcohol became popular around this time. One of the largest groups, The American Temperance Society, was founded in Boston in 1826. The organization was immensely popular in America; three years after its founding, the ATS boasted 100,000 members. By 1833, there were more than 1 million members, and nearly 5,000 chapters nationwide. Drinking was so deeply woven into American culture that these Prohibitionists became zealous in their anti-alcohol crusades. In Cincinnati, a woman named Carrie Nation terrorized tavern-goers by vandalizing bars with an axe, and several groups of women in Ohio regularly marched into drinking establishments to demand the elimination of alcohol sales in towns across the state.[170] Temperance Movement members believed that drinking in excess was immoral, and that Americans who consumed large amounts of spirits "posed a threat to America's political system."[171] The Temperance Society blamed many of the social woes that plagued cities on drink and wanted to outlaw the consumption and production of alcohol in the United States. Another temperance organization, known as the Anti-Saloon League, was founded in Ohio in 1893.[172] The Anti-Saloon League wanted to pursue the total prohibition of alcohol through the ratification of the United States Constitution, and was the precursor to the eventual Prohibition movement. However, within the Temperance movement, there were some parties that were interested in permitting the consumption of beer in lieu of stronger

[170] Ohio History Central. "Temperance Movement." Ohio History Central. (Accessed March 18, 2018).
[171] Ohio History Central. "Temperance Movement." Ohio History Central. (Accessed March 18, 2018).
[172] Gaston, Paul L. Ohio's Craft Beers. (Kent: Black Squirrel Books, 2016), 7.

American spirits, like whiskey. "Beer against Whisky" was a statement in response to the strong brewing industry in the United States, and an acknowledgement that beer drinkers were generally more orderly and responsible than those who consumed harder spirits like whiskey or rum. By 1873, there were 4,131 breweries in the U.S., producing upwards of 9 million barrels of beer, or roughly 3 billion pints. This was a high point in American brewing. As the American Temperance Society regrouped to form the American Temperance Union, its members began seeking a total prohibition on alcohol consumption in the United States. Maine became the first state in the Union that established a prohibition of the production and consumption of alcohol in 1846, and many other states followed suit. The fight for prohibition began to shutter breweries around the country, and the practice of home-brewing declined. Women in general became disassociated with the profession in the late 1800s, eventually allowing for the rise of the brewing industry's reputation as a male dominated field.[173]

Finally, the American Temperance Union achieved its goal: the 18th Amendment to the United States Constitution was ratified on January 16, 1919. The passage of prohibition laws garnered the exact opposite response than anticipated: massive protests and rioting broke out in many cities, including brewery towns like Cincinnati and Milwaukee. Prohibition Laws "inadvertently and unexpectedly sparked

[173] Schell, Allison. "Women and Beer: A Forgotten Pairing." The National Women's History Museum. Accessed March 27, 2018. Page 1.

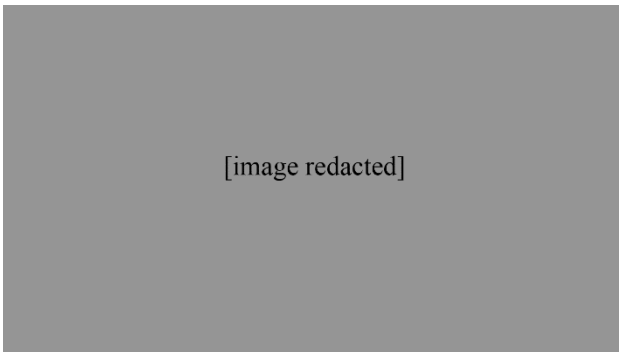

Figure 58: Anti-Prohibition March in the 1930s (Source: Library of Congress)

the crime and chaos they had been designed to eliminate."[174] By eliminating the production of most beer in the United States, many local economies were crippled. Breweries shuttered, and entire communities lost their livelihoods and neighborhood "third places." Popularity of the lower-alcohol content small or 'near beers', which were not prohibited by the 18th Amendment, grew with surviving breweries producing nearly 300 million gallons in 1921 alone.[175] In fact, the amendment created an entire black market for 'booze' in America: the 1920's became an era of speakeasies, "We Want Beer" posters, and bootleggers. Some companies produced products that were used for 'baking' or other industries that where thinly-veiled attempts to enable the home-brewing industry to succeed.[176] Through home brewing, 'bootlegging', and public protests or riots, many Americans actively resisted the Temperance Unions and Leagues that popped up across the country. As riots and crime grew out of Prohibition, the Temperance Movement fragmented. Advocates disagreed on how prohibition should be carried out, and infighting led to the eventual collapse of Prohibition in the

[174] Ogle, Maureen. *Ambitious Brew: The Story of American Beer.* (New York: Harcourt, Inc, 2006), 28.
[175] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 6.
[176] Stack, Martin L. "A Concise History of America's Brewing Industry." The Economic History Association. (July 4, 2003), 4.

United States. By 1933, anti-Prohibition activists' arguments and protests became successful. The United States Congress legalized the production and consumption of beer in April of 1933, and soon the 21st Amendment to the United States Constitution legalized all forms of alcoholic beverages.

The American brewery industry was slow to recover in the decades following Prohibition. One year after the ratification of the 21st Amendment, there were only 756 breweries operating in the United States.[177] Advancements in refrigeration, advertisement, manufacturing technology, and distribution networks in the 1900s created the ability for beer to be shipped across thousands of miles. Breweries with large distribution networks, like Anheuser-Busch, survived Prohibition due to their ability to continue shipping other goods, including supplies to the American Armed Forces in World War II.[178] Changes in the way Americans shopped and lived caused a decline in the social and local focus in the brewery industry. Large, multi-million-dollar companies, referred negatively to in modern times as "Big Beer," became the dominant provider of America's malt beverages. By the year 1961, their control of the market led to a decrease to 140 independently run breweries in the States.[179] Companies like Anheuser-Busch InBev and Constellation Brands brewed beers which have become household staples in the United States: Budweiser, Miller, Coors, and other mass-produced labels have become recognizable world-wide as inexpensive American beers. These labels are often made with cheaper, widely-available ingredients and fast

[177] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 7.
[178] Stack, Martin L. "A Concise History of America's Brewing Industry." The Economic History Association. (July 4, 2003), 4.
[179] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 7.

turnaround times which allowed their production volume to skyrocket, with millions of hectoliters produced by Anheuser-Busch InBev alone in 2016.[180] The global domination of the beer industry continued to influence the decline of the locally-crafted brewery culture in the United States. Home brewing continued to be prohibited following the 21st Amendment, and as a result most Americans relied on large alcohol manufacturers for their beer and spirits. Increases in beer canning and bottling caused a shift in where Americans could consume their beer. No longer was there a need to go down to a local tavern or brewery; Americans could purchase canned beer at their local grocery or liquor stores and consume them at home. Further distribution increases, as well as the consolidation of more American breweries continued to shutter the independent beer industry, which had a direct impact on the social culture of beer consumption. The top six breweries in the United States controlled 92% of all beer production in the early 1980s, and there were only 44 businesses producing all American beer that was consumed in the United States.[181]

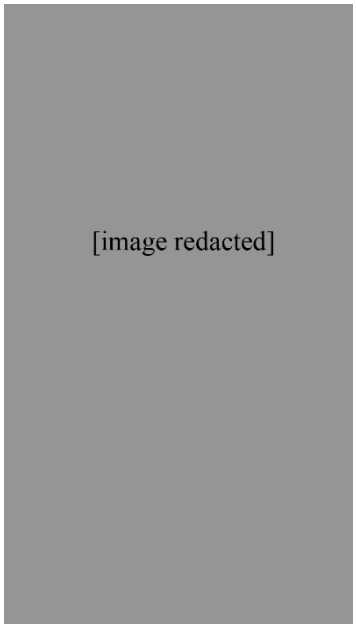

Figure 59: Anheuser-Busch Advertisement, dated 1962. (Source: Flashbak.com)

[180] Anheuser Busch-InBev. "2016 Annual Report." Accessed March 26, 2018.
[181] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 8.

The change in culture had a large impact on the art of brewing itself. American breweries were not producing a wide variety of beer styles and types, nor were they exploring the use of experimental ingredients. Many widely available styles, like Budweiser, were mass-produced, weak American pilsners or lagers. But around the end of the 20th century, the social components of drinking began to be reclaimed by local communities. Americans wanted beverages that were crafted and consumed in their own communities. The first 'craft brewery' in the United States is credited as Anchor Brewing Company, established in 1969 in San Francisco, California.[182] However, Anchor Brewing itself was not entirely new – the brewery was originally founded in 1896 by a German immigrant and his son-in-law, who purchased another, already established saloon run by another German immigrant, Gottlieb Brekle.[183] Craft breweries like Anchor became stewards for the preservation of brewing history in America. Like the pre-Prohibition breweries popularized by German-American communities, the craft brewing industry was more concerned about the quality of the

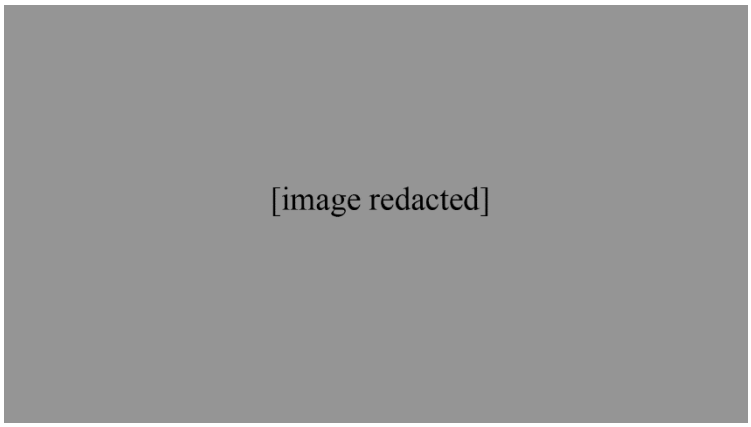

Figure 60: Historic Copper Brew Tanks at Anchor Brewing Company. (Source: Anchor Brewing Co.)

[182] Van Wieren, Dale P. *American Breweries II.* (West Point: East Coast Brewiana Association, 1995), 8.
[183] Anchor Brewing Company. "Our History." (Accessed March 26, 2018)

beverages produced, as well as the social culture of beer production and consumption. Local breweries reintroduced the "third place" aspect of social drinking and shifted the focus back to locally sourced and produced drinks. Communities actively began to reject "Big Beer," and more craft breweries sprung up around the country. The Brewers Association, founded in 1979, sought to promote the development of independent craft breweries and production.[184] However, the art of brewing stayed relatively stagnant. Most Americans had no understanding of how beer was produced, because they were not legally allowed to produce their own beverages. American culture risked losing the intangible heritage of beer culture.

The pivotal moment for the craft beer industry was President Carter's signature on House Bill 1337, introduced into the 95th United States Congress in 1977. The Bill allowed for adults to "produce wine and beer for personal and family use" up to 200 gallons for households with multiple members.[185] By undoing the final provisions of American Prohibition, HB 1337 allowed every American state to allow for home brewing, and also revived one of the first American industries. Americans began producing and experimenting with their own brews in their households. As some brewers gained experience, they began opening local breweries in their own communities. New businesses selling brewing equipment and ingredients launched a new market in the country's economy. The craft brewing movement caught fire, becoming a new sort of American Revolution. The craft beer industry recovered from its lowest point in 1983, eclipsing 1,000 breweries just a decade later. Contrary to most

[184] Brewers Association. "Purpose." (Accessed March 14, 2018)
[185] House Resolution 1337. *26 U.S.C §5051.*(1978)

markets in the United States, the Recession of 2008 actually led to the success of the industry. As of 2016, the Brewers Association reported that there were over 5,000 independently owned breweries in the United States.[186] Some craft breweries developed into extremely large productions due to their own popularity and following. Dogfish Head Brewery in Milton, Delaware became a nationally distributed brand, but retains the local spirit that made it famous. Craft Breweries around the nation also created a new aspect of American tourism. Local breweries provided products which were simply not available anywhere else in the country and preserved the spirit of an American industry. Likewise, the heritage of women brewers was reintroduced with the craft beer revolution.[187]

The impact of the craft beer industry has followed hundreds of years of social and cultural trends in the United States. The art of brewing has been preserved, improved, experimented with, and celebrated within the walls of craft breweries across the country. Time and time again, Americans have proved their love for beer, and have gone to great lengths to fight for the production and exploration of brewing. The industry is more than just a manufacturing process and product. Brewing has become a social industry in America and will continue to flourish and develop as the nation continues to grow.

[186] Brewers Association. "Number of US Breweries." (Accessed March 14, 2018)
[187] Schell, "Women and Beer: A Forgotten Pairing." 4-5.

Bibliography

Abita Springs Brewing Co. “How We Make Beer.” Accessed June 25, 2018. https://abita.com/about/how-we-make-beer/ingredients

About Pyramid Atlantic.” Pyramid Atlantic Art Center. May 20,2019. https://www.pyramidatlanticartcenter.org/copy-of-mission

Ayers, Tom. “Understanding the Boil.” *Love2Brew* Blog. Accessed March 29, 2017. https://www.love2brew.com/Articles.asp?ID=318

American Assembly, The. “Legacy Cities.” Accessed June 12, 2018. http://americanassembly.org/projects/legacy-cities

American Psychological Association. “Stress a Major Health Problem in The U.S.” Study published 2007. Accessed June 24, 2018. http://www.apa.org/news/press/releases/2007/10/stress.aspx

Anchor Brewing Company. “Our History.” Accessed March 23, 2017. https://www.anchorbrewing.com/brewery/our_history

Anheuser-Busch InBev. “2016 Annual Report”. Published March 2, 2017. Accessed March 23, 2018. http://www.ab-inbev.com/content/dam/universaltemplate/ab-inbev/investors/reports-and-filings/annual-and-hy-reports/2017/03/AB%20InBev%20Annual%20Report%202016%20-%20Financial%20report.pdf

Barr, Andrew. *Drink: A Social History of America.* New York: Carroll & Graf Publishers, Inc.: 1999.

Baum, Martina and Christiaanse Kees, Eds. *City as Loft: Adaptive Reuse as a Resource for Sustainable Urban Development*. Lecturis BV: Eindhoven, 2012.
Hasse, Jürgen. “Brownfields – Characteristics and Atmosphere.” In Baum/Kees 2012, 52-58.
Kees, Christiannse. “Traces of the City as Loft.” In Baum & Kees 2012, 14-24.

Blakeslee, Jake. “’White Flight’ to the Suburbs: A Demographic Approach.” *Focus.* Winter 1978-79.

Brewers Association. https://www.brewersassociation.org/ Accessed March 25, 2017.

Berning, Joshua, Marco Costanigro, and Michael P. McCullough. "Can the Craft Beer Industry Tap into Collective Reputation?" Choices 32, no. 3 (2017): 1-6. http://www.jstor.org/stable/90015007.

Bergefurd, Brad. “Developing the Ohio Hops and Malting Barley Industry.” *Connections Newsletter* (Summer Edition 2015). The Ohio State University. Accessed March 29, 2018. https://southcenters.osu.edu/newsletter/connections-newsletter-summer-edition-2015/horticulture/developing-the-ohio-hops-and

Blecker, Phil. Interview with Author. By Phone, 2018

Buck, Naomi. “Raising a Greener Glass.” *Corporate Knights* 13, no. 3 (Summer 2014): 26-28. Accessed February 19, 2018. http://www.jstor.org/stable/43242922

Conover, Charlotte Reeve, and Greater Dayton Association. *The Story of Dayton*. Dayton, Ohio: Greater Dayton Association, 1917. https://hdl.handle.net/2027/nyp.33433081844957

Dayton Chamber of Commerce. *Dayton: Birthplace of the Airplane and the Nation's Center of Aviation (Pictures, Maps, Statistics)*. Dayton: 1923. http://www.daytonhistorybooks.com/f/1923_Daytion_Transit_Map.pdf.pdf

Dayton Daily News.
Frolik, Cory. "Dayton Arcade could house 2nd Warped Wing, Boston Stoker, DVAC." Published 2017. Accessed June 26th, 2018.
Frolik, Cory. "Zero takers for 30 Properties in the Wright Dunbar Village". Published September 5, 2017. Accessed June 26 2018.
Sweigart, Josh. "Lasting Scars: The 1966 Dayton riot, and west Dayton Today." Published September 2, 2016.

Elefante, Carl. The Greenest Building Is... One That Is Already Built. Forum Journal. 27. 62-72. 2012.

Gaston, Paul L. *Ohio's Craft Beers*. Kent: Black Squirrel Books, 2016.

Greater Ohio Policy Center. "Legacy City Regrowth: Reviving Ohio's Most Important Assets." Accessed June 24, 2018. https://www.greaterohio.org/legacy-city-regrowth/

Hass, Robert. "Poet's Choice." Washington Post. May 12, 1996. Accessed May 21, 2019. https://www.washingtonpost.com/archive/entertainment/books/1996/05/12/poets-choice/ab605db5-e320-4296-99f7-95d0db5f436a/?utm_term=.fb174e9f2ae4

Harrison, Jill Ann. "Rust Belt Boomerang: The Pull of Place in Moving Back to a Legacy City." City & Community 16:3 (Washington DC: American Sociological Association, 2017.) 263-283.

Hines, Nick. "AB InBev to U.S. Craft Brewers: No Hops for You!" *Vinepair* (May 12, 2017). Accessed March 30, 2018.

Higgins, J. S, et al. *Titus' map of Montgomery County, Ohio*. Philadelphia: C. O. Titus,. Philadelphia.: Printed by F. Bourquin, 1869. Map. Retrieved from the Library of Congress, www.loc.gov/item/2012592383/

HR 1337, 'An Act to amend the Internal Revenue Code of 1954 with respect to excise tax on certain trucks, buses, tractors, et cetera, home production of beer and wine, refunds of the taxes on gasoline and special fuels to aerial applicators, and partial rollovers of lump sum distributions'. *US Code* 26 (1978), §5051 et seq.

"How an Ice Cream Plant Stood Severe Test." *The Creamery and Milk Plant Monthly,* 2, no. 12. August 1914. Accessed February, 19, 2018. https://books.google.com/books?id=HjBCAQAAMAAJ&pg=RA11-PA8#v=onepage&q=gem%20city&f=false

Jacobs, Jane. *The Death and Life of Great American Cities*. 1961.

Kennedy, Caitlyn. "Climate & Beer." *National Oceanic and Atmospheric Administration*. Published January 13, 2016. Accessed April 3, 2018. https://www.climate.gov/news-features/climate-and/climate-beer

"Laneway Housing How-To Guide." City of Vancouver, October 2018. Accessed May 2019. https://vancouver.ca/files/cov/laneway-housing-guide.pdf

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

National Park Service. "Wright-Dunbar Village." Accessed June 12, 2018. https://www.nps.gov/daav/learn/historyculture/wrightdunbarvillage.htm

New Belgium Brewing Company. "2017 Sustainability Report." Accessed March 29, 2018. https://www.newbelgium.com/docs/default-source/sustainability/2017sustainabilitybrochure.pdf?pdf=sustainabilityreport

Meltzer, Emily Dana. "Adaptive Reuse of the Seaholm Power Plant: Uniting Historic Preservation and Sustainable Practices." *Digital Repository at the University of Maryland.* 2011. Accessed February 19, 2018. http://hdl.handle.net/1903/12444

Murphy, Scott. 2018. Interview by author. By Phone (Dayton, Ohio). March 15.

Ohio Craft Brewers Association. Accessed March 26, 2018. http://www.ohiocraftbeer.org/

Ohio History Central. Ohio History Connection. Accessed March 18, 2018. http://www.ohiohistorycentral.org/w/Welcome_To_Ohio_History_Central

Ogle, Maureen. *Ambitious Brew: The Story of American Beer.* New York: Harcourt, Inc., 2006.

Oldenburg, Ray. *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community.* Philadelphia: Da Capo Press, 1999.

Odeneal, Reed. 2018. Interview by author. Pensacola. May 28.

Palmer, John J. *How to Brew: Everything you Need to Know to Brew Great Beer Every Time.* Boulder, Colorado: Brewers Publications, a division of the Brewers Association, 2017.

Preservation Ohio, "2016 List of Ohio's Most Endangered Historic Sites." Accessed June 26, 2018. http://preserveohio.com/2016-list-of-ohios-most-endangered-historic-sites-announced/

Renstrom, Arthur G. *Wilbur and Orville Wright: A Chronology Commemorating the Hundredth Anniversary of the Birth of Orville Wright.* Washington, DC: NASA, 1971. Reissued 2003.

Robinson, Amelia. "Urban Chic Hair Salon to open in Wright-Dunbar district in Dayton." *Dayton Daily News,* January 23, 2019. Accessed January 23, 2019.

Rodabaugh, W.J. "A Nation of Sots: When Drinking Was a Patriotic Duty". *The New Republic.* September 29, 1979. Accessed March 26, 2018. https://newrepublic.com/article/122760/nation-sots-when-drinking-was-patriotic-duty

Ruger, A, and Merchant's Lithographing Company. *Dayton, Ohio*. [Chicago, Merchants Lithographing Co, 1870] Map. https://www.loc.gov/item/73694508/.

SABMiller. "SABMiller Brewing Process". Published July 19, 2012. Accessed March 29, 2018. https://www.youtube.com/watch?v=pV_dnISv7Jk

Schell, Allison. "Women and Beer: A Forgotten Pairing." National Women's History Museum. Published May 11, 2017. Accessed March 27, 2018. https://www.womenshistory.org/articles/women-and-beer-forgotten-pairing

Stack, Martin H. "A Concise History of America's Brewing Industry." The Economic History Association. July 4, 2003. Accessed March 26, 2018. https://eh.net/encyclopedia/a-concise-history-of-americas-brewing-industry/

Thompson, Mary V. "Beer." George Washington's Mount Vernon. http://www.mountvernon.org/digital-encyclopedia/article/beer/

Tyma, Adam W., Ed. *Beer Culture in Theory and Practice: Understanding Craft Beer Culture in the United States*. Lanham: Lexington Books, 2017.
Calka, Michelle. "Fermenting Community: Homebrewing as Community Building." In Tyma 2017, 1-14.
Bell, Travis R. "What's in a Name?: Cultural Heritage and Naming Praxis in Tampa Bay Craft Breweries." In Tyma 2017, 97-112.

University of Dayton. "Original 1913 Flood Footage." (historic footage). 1913. Accessed March 30, 2018. https://www.youtube.com/watch?time_continue=111&v=Ltv15EfS_20

Van Wieren, Dale P. *American Breweries II.* New York: East Coast Breweriana Association, 1995. Accessed March 26, 2018.

World Resources Institute. "AQUEDUCT Water Risk Atlas." 2018. Accessed June 28, 2018. http://www.wri.org/our-work/project/aqueduct

Witmer, Jim. "Beer – A taste of Dayton's Past." Dayton Daily News. October 21, 2015. Accessed March 5, 2018. https://www.mydaytondailynews.com/lifestyles/beer-taste-dayton-past/3qZ0EPLgGrbkJIraaw3cIK/

Wright, Nathalie. "Historic Context." Ohio History Central. Accessed March 30, 2018. https://www.ohiohistory.org/OHC/media/OHC-Media/Documents/rp-23.pdf

Yanney, Matt. "The Gem City Ice Cream Building and the First Wright Cycle Shop." Getting the Story Wright. December 14, 2014. Accessed June 26th, 2018. https://wrightbrothershistory.blogspot.com/2014/12/the-gem-city-ice-cream-building-and-1st.html

Young, Roz. "Is it the Real Gem?" *The Journal Herald, n.v.* (January 3, 1973). Accessed March 30, 2018. http://www.daytonhistorybooks.com/whatnever.html