



The Port of Greater Cincinnati Development Authority Re-Industrialization of Hamilton County

Prepared for

**The Port of Greater Cincinnati Development Authority
And TechSolve**

Prepared by

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Executive Summary

The proposed redevelopment of approximately 2,000 acres of underutilized industrial land throughout Hamilton County for manufacturing establishments will have a considerable impact on the Greater Cincinnati Region. To understand the historical, present, and future importance of manufacturing in the region, the Economics Center analyzed establishment-level data for each time period, prepared an economic output report, and estimated the fiscal impact of the redevelopment on the region.

The first part of this study provides a historical analysis of Cincinnati starting at the founding of the City. This analysis includes information spanning from the 19th century to present day, with specific attention paid to pre- and post-WWII periods through 1955, before the peak of manufacturing.

The second part of the study details the demographic and economic transitions from 1955 to present day. This includes calculating the peak of manufacturing employment as 1969, which was defined as the highest total employment within manufacturing during the post-WWII manufacturing era.

The third part of the analysis includes a quantitative evaluation of the economic impact of manufacturing for the region based on employment, wages, and output. These calculations include establishment-level data from 1969, 2015, and the proposed redevelopment of 2,000 acres. This analysis was completed using four study areas—North, West, East, and Central—as well as the remainder of Hamilton County to frame where the impacts are throughout the region.

The impact of manufacturing during peak employment of 1969 resulted in nearly 700,000 total jobs in Hamilton County and more than \$106 billion of direct and indirect economic output (in 2015 dollars).¹ The impact of manufacturing in Hamilton County during 2015 resulted in 114,754 total jobs and \$65 billion in total impact.

Table 1

Hamilton County Manufacturing, Direct and Indirect Employment, Wages, And Economic Output, 1969 & 2015		
	1969	2015
Direct Manuf. Employment	145,987	48,495
Total Employment	699,744	114,754
Total Wages	\$13,463,522,587	\$ 7,488,573,767
Total Output	\$106,077,136,735	\$ 65,091,736,905

¹ "Total" includes indirect and direct. For example, direct jobs consist of people employed within manufacturing whereas indirect jobs consist of the jobs created indirectly by the business-to-business transactions that resulted from the direct jobs. Indirect jobs also includes the additional labor force created by the spending of take-home earnings by direct employees at local institutions.

While there were more than six times as many total jobs resulting from manufacturing in 1969 than in 2015, the average wage of the direct and indirect jobs in 2015 was \$65,000— more than three times the average wage in 1969 of \$19,240. This represents more than 114,000 households that exceed 200 percent of the 2015 Federal Poverty Guidelines for a family of four with one income alone.

The Economics Center calculated the market share of each type of manufacturing based on existing establishments in Hamilton County to better estimate the overall operational output of the proposed redevelopment. The different types of manufacturing in 2015 and the proportions of each type helped guide the expected and forecasted growth for new manufacturing.

The impact of the operations of these additional manufacturing facilities will result in a direct impact of 31,977 jobs with average wages of \$70,700 per year and a total jobs impact of 76,164 jobs with average wages of more than \$60,000. The economic impact of the total output will, when fully built-out, exceed \$40 billion per year.

Table 2

**Hamilton County Impact due to Operations of Proposed
Manufacturing Redevelopment**

	Employment	Earnings	Output
Direct	31,997	\$2,262,599,766	\$11,993,813,254
Indirect	44,167	\$2,375,874,656	\$28,202,488,954
Total	76,164	\$4,638,474,422	\$40,196,302,208

Including the combined impact of the existing manufacturing operations and the proposed redevelopment, Hamilton County will have more than 80,400 individuals working directly in manufacturing producing a total economic output of over \$105 billion—almost as much impact as the peak manufacturing period in Hamilton County’s history.

Table 3

**Hamilton County Total Impact, including Operations of Proposed Manufacturing
Redevelopment and Current Manufacturing Outputs**

	Employment	Earnings	Output
Direct	80,492	\$5,895,873,890	\$51,895,360,515
Indirect	110,426	\$6,231,174,299	\$53,392,678,598
Total	190,918	\$12,127,048,189	\$105,288,039,113

Though the future manufacturing operations impacts are substantial, the construction of new facilities to house the new establishments also factor into the economic impact analysis. The Economics Center

analyzed the size of the proposed expansion and the estimated costs of constructing the facilities to calculate the one-time economic impact generated by the redevelopment of nearly 2,000 acres of land into industrial and manufacturing uses.

The construction alone will provide more than 12,000 direct jobs with an average wage of more than \$52,000. The total impact of the construction will result in 21,794 jobs and more than \$5.2 billion in economic output in Hamilton County.

Table 4

**Hamilton County Impact due to Construction of Proposed
Manufacturing Redevelopment**

	Employment	Earnings	Output
Direct	12,724	\$672,171,100	\$3,397,680,000
Indirect	9,070	\$335,074,192	\$1,863,170,100
Total	21,794	\$1,007,245,292	\$5,260,850,100

The redevelopment of manufacturing facilities will have substantial impacts on local tax collection, specifically Hamilton County property taxes and local school districts. Based on estimates of the final construction costs and value-to-cost ratios, an additional \$1.9 billion of new real property value will be redeveloped in manufacturing space resulting in more than \$54 million in additional annual property tax collections, including \$11 million to Hamilton County alone, as seen in Table 5. An additional estimated \$37 million will be realized by local school districts. Further, local jurisdictions will receive \$4.9 million in additional tax collections.

Table 5

**Fiscal Benefits, Countywide Impact Based on Proposed
Manufacturing Construction and Redevelopment**

Hamilton County	\$11,594,000
School Districts	\$37,703,000
Local Jurisdiction	\$5,160,000
New Property Tax Collections	\$54,457,000

In addition to the new County and school district tax revenue, the redevelopment will benefit local jurisdictions and provide additional local tax revenue. Table 6 shows that local jurisdictions are expected to receive more than \$5.1 million from City, Village, and Township property taxes. These new property tax collections will not only cover the additional cost of service burden due to new development, but contribute to providing for the cost-of-services of other land uses.

Table 6

Local Jurisdiction Property Tax Revenue Area, Proposed Redevelopment	
	New Property Tax Revenue
Central	\$2,317,000
East	\$1,117,000
West	\$464,000
North	\$267,000
Remainder	\$995,000
Total	\$5,160,000

Lastly, the proposed redevelopment will result in significant increases in income tax collections in the areas where new establishments and employees are located. Table 7 shows the estimated income tax collections in 1969, 2015, and for the proposed redevelopment (in 2015 dollars). The redevelopment of 2,000 acres for industrial and manufacturing uses will result in approximately \$33 million in new annual income tax revenue for Hamilton County municipalities, a 68 percent increase compared to current manufacturing income tax collections.

Table 7

New Income Tax Collections from Direct Manufacturing Jobs, 1969, 2015, and Proposed New Due to Redevelopment			
	1969	2015	Proposed New
Central	\$42,143,478	\$20,925,524	\$18,477,357
East	\$18,461,870	\$9,284,291	\$6,528,867
West	\$11,085	\$869,958	\$1,132,745
North	\$997,813	\$11,744,852	\$2,362,545
Remainder	\$10,228,170	\$5,521,520	\$4,748,920
Total	\$71,842,416	\$48,346,145	\$33,250,434

*Figures are not adjusted for Commercial Abatements

This proposed redevelopment effort will position Hamilton County as a national leader in manufacturing redevelopment and will have the potential to provide jobs for generations.

Introduction

Manufacturing has been a staple of the American and local economy for two centuries. Pre-modern manufacturing was born of innovations, economies of scale, and struggles to meet the demands of a growing and increasingly affluent population. Cincinnati's proximity to the East Coast, as well its location along major trade routes and waterways, made Cincinnati an ideal city that seemed destined to become a national powerhouse for the production of goods.

After years of manufacturing dominance in the region during the mid-19th century, Cincinnati's competitive advantages began to fade as other prominent manufacturing and goods-producing cities adopted alternative means of transportation and production. However, the Cincinnati region continued to be a primarily goods-producing economy for another century before there were signs of decline in overall sector employment. While the share of individuals working in manufacturing began to decline in the early- to mid-20th century, the peak of employment in manufacturing was not until 1969. Since the peak, manufacturing has been in decline locally. Nationally, manufacturing continued to grow for another decade before experiencing ongoing contraction.

This report looks at the economic impact of manufacturing within Hamilton County, examines national and international influences on manufacturing, and explores what role manufacturing currently has within the regional economy. The report also explores what role manufacturing can play if there were to be substantial redevelopment and investment in manufacturing establishments. The benefits of investing in manufacturing are widespread and offer individuals the opportunity to prosper by working in a skilled-labor and technical environment.

For this project, multipliers were derived from an input-output model created by the Bureau of Economic Analysis (BEA), a division of the U.S. Department of Commerce. This model, its constituent tables, and resulting multipliers are part of the BEA's RIMS II project (Regional Industrial Multiplier System), which covers both the state and county levels throughout the United States.

Input-output models give a picture of the direct and indirect impacts of a given business or organization. The direct impacts of the operations are calculated using employment, wages, and the economic output. The construction impacts are similarly calculated using the cost of construction of the proposed 2,000 acres of manufacturing redevelopment. The types of manufacturing developments used for this analysis to estimate the total economic impact reflect a similar makeup to the current composition of manufacturing within Hamilton County. Finally, the direct and indirect impacts of inter-industry relationships create induced impacts due to the spending of private households.

Multipliers are figures that represent all the inter-industry and household economic relationships measured in the input-output model. For every dollar spent by a given organization in a particular industry, multipliers reflect how many more dollars will be spent in a local economy by other businesses and households, thereby determining the total economic impact of a project or

investment. The multipliers reflect two sets of economic impacts: i) the direct effect number of jobs and wages and ii) the final effects, which add the indirect and induced impacts to the direct impacts.

Historical Manufacturing in Hamilton County

Manufacturing has long been a primary component of Cincinnati's economy, but this was not always the case. The city was founded in the late 18th century and rose to prominence in the early 19th century on the basis of its favorable trade routes, as a commercial city moving goods produced elsewhere and producing little of its own. Before the War of 1812, Cincinnati's merchant economy grew by connecting the expanding towns on the western edge of the country with the wider Atlantic trade world. When trade was cut off by the war, Cincinnati merchants began manufacturing textiles locally to replace those of the British, and used the river trade routes to their competitive advantage.²

Cincinnati's position on the Ohio River enabled it to profit from the "transportation revolution" of the first half of the 19th century. The revolution began with the construction of the Erie Canal, which began a boom in canal construction throughout the Midwestern states. Accompanying these canals was the arrival of a new transportation technology: the steamboat. These two developments drove Cincinnati's growth in manufacturing and warehousing after 1830. Producers of steamboats and engines moved into other industrial machinery, such as sugar mills and cotton gins, and this particular specialization proved to be a lasting strength. Additionally, the faster shipping speeds resulting from the canals allowed for hog processing and meatpacking to become major local industries, much as Chicago's status as a major rail hub enabled its own meatpacking empires years later. Other manufacturing industries arose as the canal system opened new markets and attracted greater numbers of (primarily German) immigrants as cheap labor.³

However, Cincinnati's dominance of the river trade proved to be a double-edged sword. When riverboats and trade with the South were the cutting edge of the American economy, Cincinnati flourished, but the coming of the Civil War and the railroads destabilized that prosperity. During the 1850s, Cincinnati packed 334,000 hogs each year, while Chicago packed 20,000. A decade later, those positions switched. The Civil War decimated the Southern economy, greatly reducing the importance of river trade and eroding Cincinnati's comparative advantage. During this time, railroad networks came to prominence, enabling better East-West connectivity and overcoming the seasonal difficulties that accompanied shipping goods by river. The economic imperatives of waging the Civil War sparked the explosive expansion in railroad shipping that transformed Chicago into the primary transportation node for trade from the East to the West that had been held by Cincinnati.⁴ Because of the prosperity from the river trade, Cincinnati did not anticipate the extent to which railroads would dominate the second half of the 19th century. Cincinnati's status as one of the gateways to the West was soon usurped by Chicago.

² Kim M. Gruenwald, *River of Enterprise: The Commercial Origins of Regional Identity in the Ohio Valley, 1790-1850*, *Midwestern History and Culture* (Bloomington: Indiana University Press, 2002), 90.

³ *Ibid.*, 126-127.

⁴ William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W.W. Norton, 1992), 128-130.

This was not the only time Cincinnati's economic strengths blinded it to changing conditions. By 1890 the region was one of the world's centers for the building of carriages and wagons, and those firms turned their back on the new automobile technology, which made its home in Detroit. Though it had recovered well from the depression of 1871-1875, through the second half of the 19th century Cincinnati lost its position as the third largest manufacturing region. In 1880 it was the largest city west of Philadelphia, with three-quarters of a million inhabitants, but new economic and technological developments emanating from steel, rails, and coal production gave prominence to Chicago, Detroit, Cleveland, and others. Yet, innovative products and industries still cropped up. In 1886 Fleischmann's yeast revolutionized the nation's baking industry. In 1883, The Kroger Grocery and Baking Company helped pioneer the modern retail food chain. The Mill Creek basin emerged as the epicenter of these manufacturing activities, illustrating the continuing importance of river transportation for moving locally produced goods.⁵

The machine tool industry in Cincinnati, which had its roots in those early builders of steamboat engines, thrived in the 1880s. This industry became the region's strongest and helped usher in a new era of prosperity with the coming of World War I, leading to increased demand for consumer goods and further stimulating local manufacturing. Out of the inevitable slump following the drop-off in war production, the region again found prosperity by marrying the carriage production infrastructure with skilled machine tooling labor to finally enter the automobile industry. This made the 1920s roar for Cincinnati's economy. But in 1929 this all came to a shrieking halt. The collapse of the national economy in the Great Depression meant a 46 percent decline in Cincinnati manufacturing employment, with almost 60 percent of the pre-Depression production value wiped out.⁶

In pre-war Cincinnati, 33 percent of total regional employment (94,682 employees) was employed in manufacturing industries, with a full 20 percent of those employed in manufacturing metals. Machinery, paper, food, and apparel were all strongly represented, as well. But things began to slowly shift with the arrival of World War II. Post-war (1950) manufacturing still made up roughly the same proportion of overall employment as it had previously, at 33 percent, or 118,044 workers, a 25 percent increase from pre-war employment. Manufacturing of machinery replaced metals manufacturing, reflecting the historic strengths in machine tooling.

For much of the rest of the country, the standard narrative holds that WWII drove a dramatic increase in manufacturing activity and employment. However, Cincinnati's real manufacturing boom did not begin until the mid-1950s. By 1953, manufacturing accounted for 45 percent of all regional employment, with a total of 175,200 workers. In other terms, during a mere three-year span, manufacturing employment in Cincinnati increased by an astonishing 48 percent, representing an 85 percent increase over pre-war figures. Driving this incredible growth was not the large ramp-up in defense spending that preceded and accompanied WWII, but preparations for and the start of the Cold War. Of particular note is the opening of the General Electric plant in Evendale during that three-

⁵ Cincinnati Federal Writers' Project of the Works Progress Administration, *They Built a City: 150 Years of Industrial Cincinnati* (Cincinnati: The Cincinnati Post, 1938), 5-8.

⁶ *Ibid*, 11-14.

year window, which also accompanied the rise of the transportation industry. Transportation manufacturing was the largest manufacturing sector by 1955, with 15 percent of total manufacturing employment.⁷ Manufacturing reigned supreme in Cincinnati's post-war economy, with a marked shift toward durable goods and increased defense spending as part of national trends.

⁷ Cincinnati Planning Commission, "Economy of the Cincinnati Metropolitan Area" (Cincinnati, July 1955).

Peak and Decline of Hamilton County Manufacturing, 1955-2015

Cincinnati's economy was not the only economy that prospered during the post-war manufacturing boom. Across the Midwest, a number of state and local economies found themselves largely dependent upon various goods-producing industries. However, the second half of this tale is one of decay, captured in the colloquial term for this region: the Rust Belt. Cincinnati's own story of manufacturing rise and decline is helpfully understood as part of this broader narrative, though it has its own flavor. This section outlines the story of the Rust Belt and then focuses on Hamilton County's part in this tale.

Rust Belt: A Brief Overview

The region known as the 'Rust Belt' comprises a number of major U.S. Midwestern cities, mostly in the states of Illinois, Indiana, Michigan, Ohio, and West Virginia, but also New York, Pennsylvania and Wisconsin. Some prominent Rust Belt cities include Detroit, Buffalo, Cleveland, and Pittsburgh, which were home to some of the largest players in U.S. manufacturing during post-WWII America. The "Big Three" auto manufacturing giants (General Motors, Ford, and Chrysler), headquartered in Detroit, together accounted for 90 percent of automobile sales in 1958, and continued to enjoy market dominance until the 1980s.⁸ Cincinnati regional steel manufacturers (U.S. Steel, Bethlehem Steel, and National Steel) and rubber tire producers (Firestone, B.F. Goodrich, Goodyear, and U.S. Rubber) were the third and fourth largest steel producers and tire producers, respectively, in the U.S. during the period between 1950 to 1970, representing a substantial share of the U.S. market.

After World War II, the Rust Belt's manufacturing sector grew into one the largest and most profitable industrial operations in the world, accounting for more than half of all U.S. manufacturing jobs and about 43 percent of all U.S. jobs in 1950.⁹ In 1969, 43 percent of the workforce in Hamilton County was employed in manufacturing, which mirrored the state level of 46 percent. In other words, nearly 1 out of every 2 jobs in Hamilton County in 1969 was in manufacturing. During 1969, Hamilton County employed more individuals in manufacturing in its history. After this substantial peak, Hamilton County as well as many other municipalities subsequently suffered a sustained decline in growth through the mid-1980s.

Rust Belt Decline: Contributing Factors and Subsequent Stabilization

Ironically, the origins of the decline of U.S. manufacturing reach back even before its 1969 peak, bringing about the "rusting" of the Midwest's industrial prowess. Evidence suggests that trouble

⁸ Alder, Simeon, David Lagakos and Lee Ohanian. "Competitive Pressure and the Decline of the Rust Belt: A Macroeconomic Analysis." October 2014. *National Bureau of Economic Research*. 31 August 2015. <<http://www.nber.org/papers/w20538>>.

⁹ *ibid*

began for U.S. manufacturing as early as 1950, and stemmed from four major factors: (i) a lack of innovation, (ii) high production costs, (iii) the arrival of overseas competition, and (iv) the rise in world oil prices. These factors are discussed in more detail below.

- (i) U.S. steel and auto manufacturing companies dominated domestic markets, with little to no foreign competition, and thus fell victim to inertia. American cars produced at this time were very large, extremely inefficient, and highly unreliable. However, because Rust Belt companies enjoyed an oligopolistic market inhabited by a few firms with similar, non-competitive pricing, there was little or no incentive to innovate or increase productivity.
- (ii) The prices of American cars were relatively high as a result of comparatively high labor costs. Numerous wage increases and generous compensation benefits were secured by labor unions, namely the United Auto Workers and United Steel Workers, through numerous strikes and negotiations. Compared to rest of the country, this translated into higher labor costs and an uncompetitive regional labor market.
- (iii) The arrival of foreign competition to the domestic market in the mid-1970s introduced the American consumer to cheaper, more fuel efficient, and better designed automobiles, including Japanese brands like Honda and Toyota. When compared to domestic market offerings at the time, the soaring popularity of these imports was unsurprising. In 1973, foreign imports accounted for 15 percent of all automobiles on the market and by 1979 they accounted for 20 percent.¹⁰
- (iv) Two successive increases in world oil prices, in 1973 – 1974 and 1979 – 1981, more than tripled prices, triggering a global economic slowdown and, predictably, rising unemployment. This scenario only bolstered the American consumer's preference for a more economically efficient option offered by foreign imports.¹¹

Manufacturing's regional employment share began to decline after 1950, with the Rust Belt losing approximately 34 percent of its manufacturing jobs between 1950 and 1980.¹² The period between 1977 and 1982 is sometimes referred to as the 'Rust Belt Shock' due to the massive job losses sustained during that time. In the decade between 1977 and 1987, the U.S. lost approximately 500,000 jobs in the auto industry and 350,000 jobs in the steel industry. These job losses coincided with a more general loss of population in the Midwest, with trends indicating that each auto or steel job lost in a manufacturing-dominated county contributed to a net population decrease of 1.8 persons.¹³ The decline experienced in the Rust Belt between 1950 and 1980 began to slow down around 1985. The

¹⁰ Smil, Vaclav. *Made in the USA: The Rise and Retreat of American Manufacturing*. Cambridge, Massachusetts: The MIT Press, 2013. Document.

¹¹ *ibid*

¹² Alder, Simeon, David Lagakos and Lee Ohanian. "Competitive Pressure and the Decline of the Rust Belt: A Macroeconomic Analysis." October 2014. *National Bureau of Economic Research*. 31 August 2015. <<http://www.nber.org/papers/w20538>>

¹³ Feyrer, James Donald, Bruce Sacerdote and Ariel Dora Stern. "Did the Rust Belt Become Shiny? A study of Cities and Counties That Lost Steel and Auto Jobs in the 1980s." *Brookings-Wharton Papers on Urban Affairs* (2007): 41-89. Document.

Region's share of aggregate employment declined by about 12 percent over the period of 1950 to 1985, but slowed to a 3 percent decline after 1985. Manufacturing employment share also decreased over the same period by 16 percent, but only about 2 percent for the period of 1985 to 2000. The slower decline reflects an adjustment to the shock that occurred mostly through net population outflow rather than an in-migration of jobs or a change in the labor force participation rate.

Economic Transition & Population Change

In adjusting to the shock, many Rust Belt cities experienced an out-migration of local population during the late seventies and early eighties. Many of these cities specialized in only a few industries and, when hit by the downturn, their populations began to decline. Cincinnati and Hamilton County were no exception. U.S. Census Bureau data for Hamilton County indicate that after an increase of approximately 60,000 people in the decade from 1960 to 1970, population peaked at approximately 924,000 people in 1970 before starting a steady decline, which continued up to 2010, the most recent census year. This pattern supports the narrative that the loss in population was correlated with the local downturn in manufacturing, notwithstanding other influencing factors.

Conversely, the Greater Cincinnati Metropolitan Statistical Area (MSA) population experienced steady growth over the decades between 1900 through 2010. As Table 8 shows, in 1970 Hamilton County's population was at its highest level and went into uninterrupted decline thereafter. The Cincinnati MSA has continued to grow from its formal inception in 1950 until 2014¹⁴.

Table 8

Population and Change in Population Hamilton County and Cincinnati MSA 1900-2014				
	Hamilton County		Cincinnati MSA	
Year	Population	Percent Change	Population	Percent Change
1900	409,479		769,556	
1910	460,732	13%	827,658	8%
1920	493,678	7%	878,115	6%
1930	589,356	19%	1,031,348	17%
1940	621,987	6%	1,078,965	5%
1950	723,952	16%	1,244,738	15%
1960	864,121	19%	1,544,659	24%
1970	924,018	7%	1,690,234	9%
1980	873,224	-5%	1,753,801	4%
1990	866,732	-1%	1,844,917	5%
2000	844,014	-3%	2,009,632	9%
2010	802,194	-5%	2,130,151	6%
2014	803,272	0%	2,131,793	0%

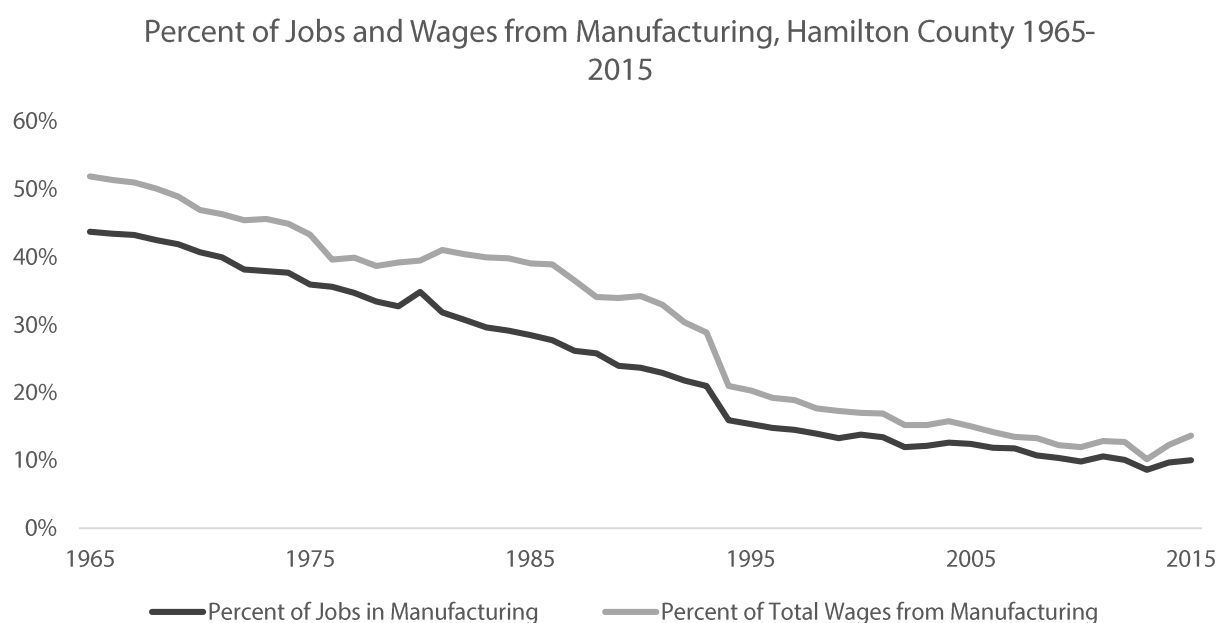
¹⁴ The most recent American Community Survey data is from 2014, 5-year estimates

The County's declining population relative to the MSA may be related to manufacturing decline in several ways: manufacturing workers went into service jobs elsewhere in the MSA, manufacturing firms located elsewhere in the MSA, or manufacturing workers followed the broader shift in American manufacturing to non-union states such as Tennessee or North Carolina. Some combination of the three is likely. Regardless of the exact relationship between population and manufacturing decline in Hamilton County, this tandem decline mirrors the experience of most Rust Belt cities. As with population, manufacturing employment peaked in the late 1960s, and did not recover. The following sections detail this peak and decline.

The Peak of Hamilton County Manufacturing, 1955-1969

While the region's manufacturing prowess increased tremendously in the years following World War II, the proportion of individuals employed in manufacturing was starting to slip over the subsequent decades. Manufacturing employment continued to grow until 1969, but grew more slowly than other industries. Cincinnati's population increased nearly 10 percent per year from 1910 through 1950 (ignoring a stagnant decade due to World War II). This significant population growth stopped during the 1950s, and the population steadily declined until 2010. Hamilton County's population also grew at the incredible rate of between 6 percent and 19 percent from 1910 to 1960, with an average 10-year growth rate of 13 percent. While this huge influx of potential labor made the region a competitive force, manufacturing was changing. Figure 1 shows the percent of jobs and wages from manufacturing in Hamilton County from 1965 through 2015. Both the number of jobs and total wages began declining after 1969 and continued to decline until 2013. This was due to changing national conditions for manufacturing, as well as international growth in the industry.

Figure 1

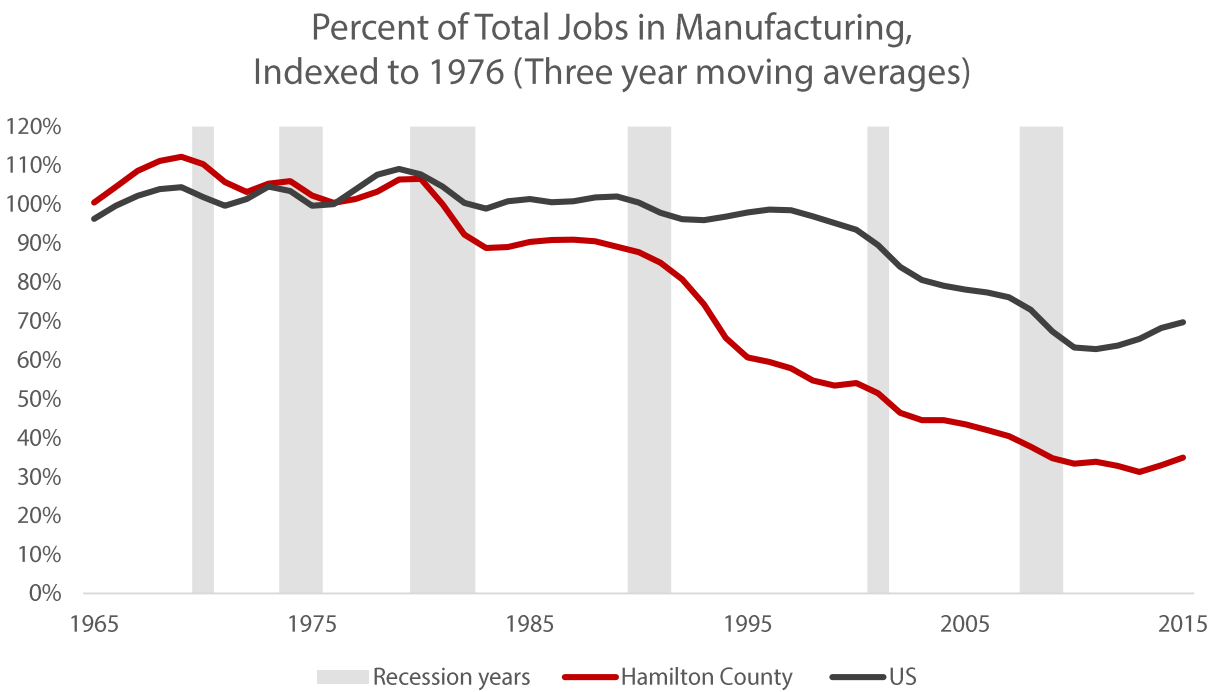


Based on employment in Hamilton County, the Economics Center has determined the peak of modern manufacturing to be 1969, with a peak number of 145,987 employees. Based on data availability, the Economics Center used the 1969 Ohio Directory of Manufacturers to compile establishment-level data and the number of employees at every manufacturing firm in the County. The data was collected between 1967 and 1969. Historical wages were taken into account and used for the economic impact analysis later in the report.

While the proportion of overall jobs and wages from manufacturing began to decline after the middle of the century, the total number of jobs continued to grow. This was due to the population growth discussed above. Figure 2 shows the indexed relationship of total jobs in manufacturing in Hamilton County and nationally from 1965 through 2015. The graph uses the percent of jobs relative to the index year (1976) so that comparisons between the two different geographies can be better seen and the relationships better understood. Indexing the values allows for the comparison of the density of jobs in manufacturing instead of looking at the number of jobs. The index year, 1976, was chosen as it is the year when the percent of total jobs in manufacturing in Hamilton County began declining faster than the percent of jobs in manufacturing in the nation.

Hamilton County's number of individuals working in manufacturing increased from 136,000 in 1965 to 145,987 in 1969, the peak employment year. U.S. manufacturing experienced growth from 1965 until 1969, slowed during a recessionary period, and then began growing again. The U.S. manufacturing industry repeated this growth, recession, growth cycle again from 1975 until 1979, where it reached a peak total employment in manufacturing of nearly 20 million jobs.

Figure 2



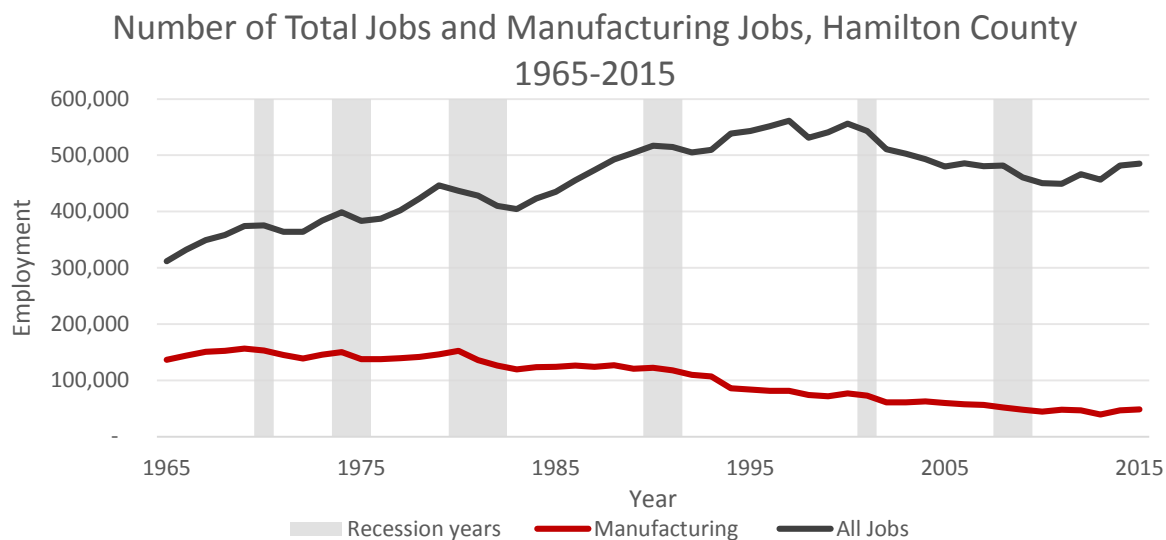
Following the 1979 peak, the U.S. entered another recession that affected both local and national manufacturing job numbers. The local impact seems to be greater, with area employment dropping nearly 20 percent due to the early 1980s recession, with national employment declining about 10 percent. The local manufacturing industry has not recovered since then. Overall, the number of individuals employed in manufacturing in 2015 was roughly one-third of the peak employment.

The peak of manufacturing in Hamilton County and its decline, as mentioned above, is not unique to the County. Regionally, manufacturing played an important role in establishing the area as a goods-producing industrial economy, which likely influenced today's large concentration of research and development centers, universities and institutions, and product-oriented marketing and consumer advertising. However, the local Region's sensitivity to national recessions is exaggerated when compared to the nation; the average loss of manufacturing jobs in Hamilton County during a recessionary period is 9.8 percent compared to the national rate of 5.8 percent. The largest regional job loss in Hamilton County due to a recession was 21 percent, but only 9 percent nationally, during the recession in the early 1980s.

Decline in Manufacturing and Growth in Services

Manufacturing peaked nationally in 1979, but Hamilton County's decline began sooner and declined at a significantly faster rate. Similar to other Rust Belt areas, Hamilton County manufacturing saw its employment share decrease from 1975 to 1995, as seen in Figure 3. The percent of the proportion of jobs in manufacturing to all jobs slipped from 36 percent in 1975 to 28 percent in 1985 and even further to 18 percent in 1995. Relative to 1975, the County lost 30 percent (41,818) of its manufacturing jobs over this 20-year period. The decline slowly continued from 1995 until 2013, where the total number of manufacturing jobs stabilized and started to increase. During the same time, Hamilton County lost nearly 100,000 workers before it began to increase again after the 2008 recession.

Figure 3



Source: U.S. Census Bureau, County Business Patterns

This Hamilton County trend stands in stark contrast to the national manufacturing workforce, which increased 2 percent relative to the size of the workforce in 1975. Meanwhile, Hamilton County's share of the national manufacturing workforce decreased by approximately 26 percent over this twenty-year period (see Table 9). This means that in 1975, for every 1,000 jobs in the nation, 4 were in Hamilton County, but for every 1,000 manufacturing jobs in the nation, nearly 8 were in Hamilton County. By 1995, this figure had fallen to just 5 manufacturing jobs per 1,000. Table 9 shares the location quotients of manufacturing in Hamilton County. A location quotient of 1 represents proportional employment in the nation and the County. A location quotient of 2 would mean that the density of manufacturing jobs in Hamilton County is twice that of the nation.

However, a different trend emerges in total (aggregate) employment across all industries in Hamilton County, with the local workforce showing a healthy expansion of 34 percent, compared to a 36 percent rise for the nation as a whole. This expansion represented 139,011 jobs added to the County's workforce over the 20-year period of 1975-1995. While it is difficult to identify the exact industries in which these jobs were created, this trend signals an expansion of the County's economy at the same time a significant contraction in manufacturing was underway. When viewed against the previously mentioned 2 percent increase in manufacturing for the nation, this suggests one of the following for Hamilton County's economy: it shifted away from manufacturing altogether; it required fewer manufacturing jobs due to sector innovation; or manufacturing jobs migrated to more competitive labor markets elsewhere in the country or abroad.

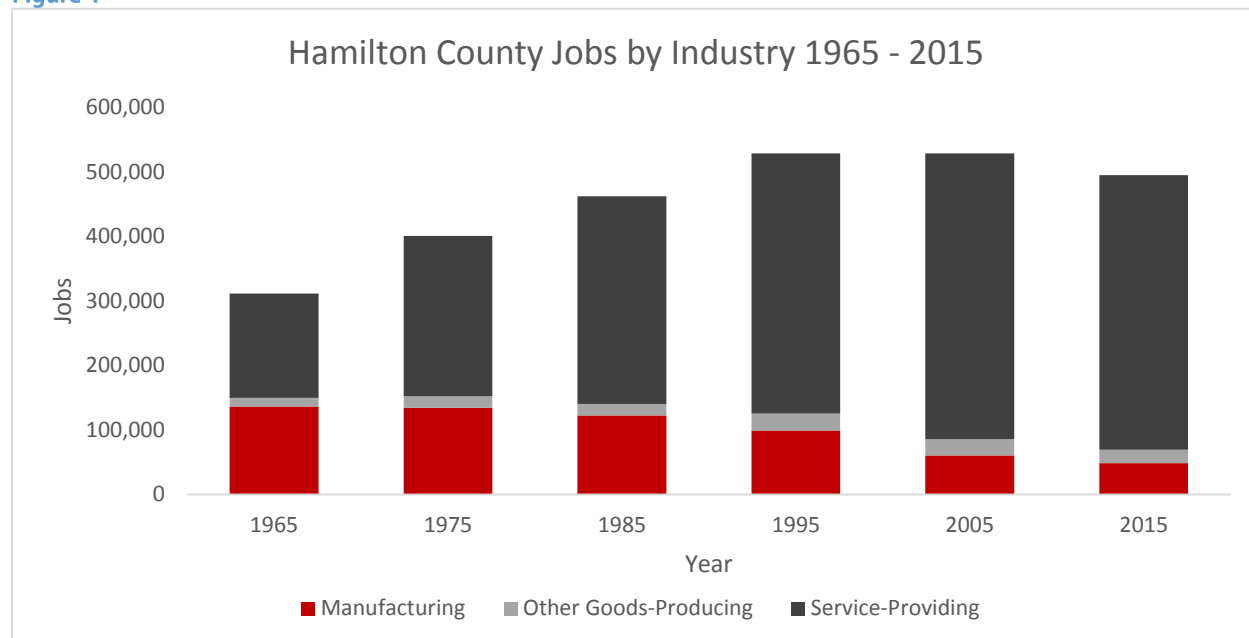
Table 9

Manufacturing and All Jobs, Hamilton County and U.S. 1955 - 2015

Year	Manufacturing Jobs		Total Jobs		% U.S. Manufacturing	% U.S. Employment	Location Quotient
	U.S.	Ham Co.	U.S.	Ham Co.	Ham Co.	Ham Co.	
1955	15,521,333	132,959	61,685,000	334,759	0.86	0.54	1.59
% Δ	7	3	15	-7	-4	-19	
1965	16,618,167	136,321	71,070,333	311,811	0.82	0.44	1.86
% Δ	2	1	21	23	-1	2	
1975	16,912,583	137,689	85,830,250	383,141	0.81	0.45	1.80
% Δ	5	-10	25	14	-15	-9	
1985	17,818,500	123,896	107,154,000	435,356	0.70	0.41	1.71
% Δ	2	-30	34	36	-32	1	
1995	17,235,078	95,871	115,414,328	522,152	0.56	0.45	1.24
% Δ	-21	-38	1	-8	-22	-9	
2005	13,667,337	59,654	116,317,003	479,873	0.44	0.41	1.07
% Δ	-10	-19	-19	1	-9	-15	
2015	12,250,873	48,495	138,303,550	485,067	0.40	0.35	1.14
1955–2015	-21	-64	124	45	54	-35	
Absolute Change	-3,270,460	-84,464	76,618,550	150,307	-0.46%	-0.19%	

As indicated by Figure 4, a substantial share of total employment shifted from manufacturing in 1965 to the services sector by 2015. In 1965, manufacturing was not only the largest sector in goods-producing industries, but of all industries in Hamilton County. The figure shows the relationship between these different types of industries while also showing the growth of total jobs from 1965 to 2015. Service-Providing sectors consist of industries such as finance, insurance, and real estate. The Other Goods-Producing sectors include agriculture, mining, and construction.

Figure 4



Wage and employment data for both the manufacturing and service sectors within Hamilton County both support a possible theory of a more innovative manufacturing sector coupled with a rapidly expanding services sector (See Table 10). Total annual manufacturing wages in the County decreased over the 20-year period by 11 percent or \$842 million. The sector also lost over 35,000 jobs or a quarter of its annual employment relative to 1975. Accompanying these negative indicators is a 21 percent *overall increase* in the average wage per manufacturing worker over those same 20 years, from \$57,000 to almost \$70,000, adjusted for inflation (where they have remained consistent since). The simultaneous *decrease in the workforce* and *increase in wages* suggest that the manufacturing sector may have shed many lower-paying jobs, replacing them with fewer, higher-paying jobs. Although Hamilton County's manufacturing sector shrank significantly, it also became dramatically more productive, as evidenced by the higher wages paid to its workers. However, the increased productivity resulting from greater innovation was not able to arrest the overall decline in manufacturing's importance to the County's economy.

During this period, Hamilton County's total workforce earnings grew by 33 percent or \$6.4 billion and the service sector was responsible for a substantial portion of this expansion. Total annual wages in services increased by 161 percent, while the number of establishments and annual average employment increased by 77 percent and 129 percent, respectively. This growth allowed the service sector to gradually overtake the manufacturing sector in terms of overall employment, and by 1995 the service sector boasted approximately 403,000 jobs, 300,000 more jobs than in manufacturing. The rest of the nation also shifted to a post-industrial, services-oriented economy during this period. Although the service sector experienced impressive gains, manufacturing workers continued to earn more than their service sector counterparts: 56 percent more in 1975 and 66 percent more in 1995. While Hamilton County has become much more reliant on the services sector, it has not shifted away from manufacturing altogether, which continues to play an important role in the economy,

particularly in providing well-paying jobs, (see Table 10). From 1995-2015, Manufacturing reduced by half again whereas Service-Providing sectors grew by approximately six percent. Average wages increased within both sectors, from \$39,000 to \$52,000 in Service-Providing and \$67,000 to \$75,000 in Manufacturing.

Table 10

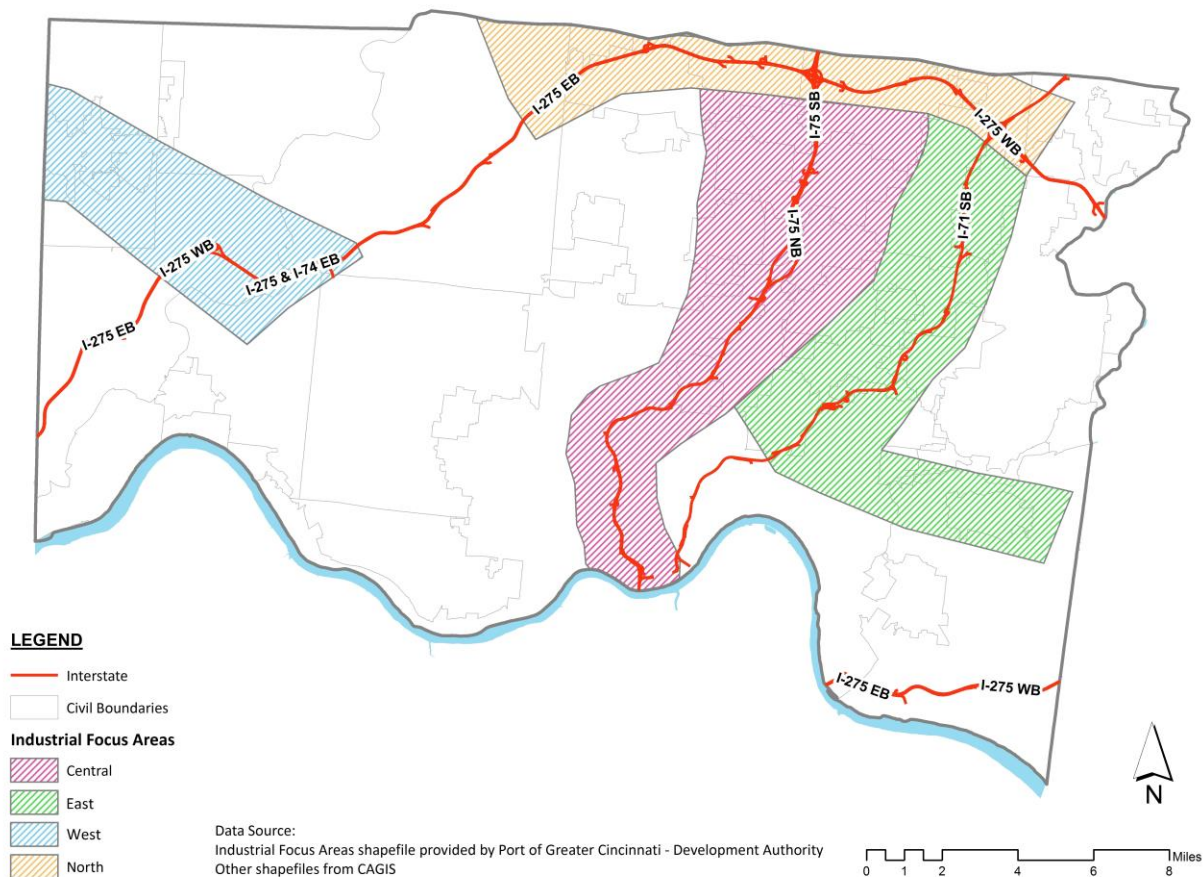
Hamilton County Wage, Employment and Establishments 1965 – 2015				
	Total Annual Wages	Average Annual Employment	Average Annual Pay (per worker)	Average Annual Establishments
Manufacturing				
1965	\$6,728,940,000	136,321	\$49,361	1,586
% Δ	14	-1	16	-1
1975	\$7,688,223,382	134,529	\$57,149	1,567
% Δ	-1	-9	9	-3
1985	\$7,591,005,706	122,179	\$62,130	1,516
% Δ	-12	-19	8	-1
1995	\$6,657,988,301	99,178	\$67,131	1,505
% Δ	-38	-39	2	-13
2005	\$4,125,828,619	60,219	\$68,514	1,316
% Δ	-18	-20	2	-18
2015	\$3,379,761,964	48,495	\$74,919	1,076
Overall % Δ	-50	-65	52	-32
Service Providing Sectors				
1965	\$5,657,520,000	161,776	\$34,971	13,511
% Δ	86	54	21	3
1975	\$10,506,099,624	248,861	\$42,217	13,979
% Δ	17	30	-10	14
1985	\$12,289,368,938	322,279	\$38,133	15,879
% Δ	28	25	3	27
1995	\$15,777,283,675	403,651	\$39,086	20,167
% Δ	37	10	25	3
2005	\$21,685,863,491	443,159	\$48,935	20,759
% Δ	4	-4	8	-2
2015	\$22,505,736,800	426,296	\$52,794	20,298
Overall % Δ	298	164	51	50

Economic Impact of Manufacturing in 1969, 2015, and Proposed Redevelopment

Manufacturing in Hamilton County has been a significant provider of employment, wages, and livelihood for more than 100 years. Whereas the majority of occupations were once labor intensive, dangerous, and physically demanding labor, the economy has transitioned into less of a goods-producing and more of a service-providing economy. However, Hamilton County is still a competitive force within advanced manufacturing, as well as in research and development.

The Economics Center and the Port Authority, divided Hamilton County into four study areas: Central, East, West, and North. Figure 5 below shows the study areas. These areas were determined using aggregate grouping techniques in an attempt to better explain the current and future development patterns.

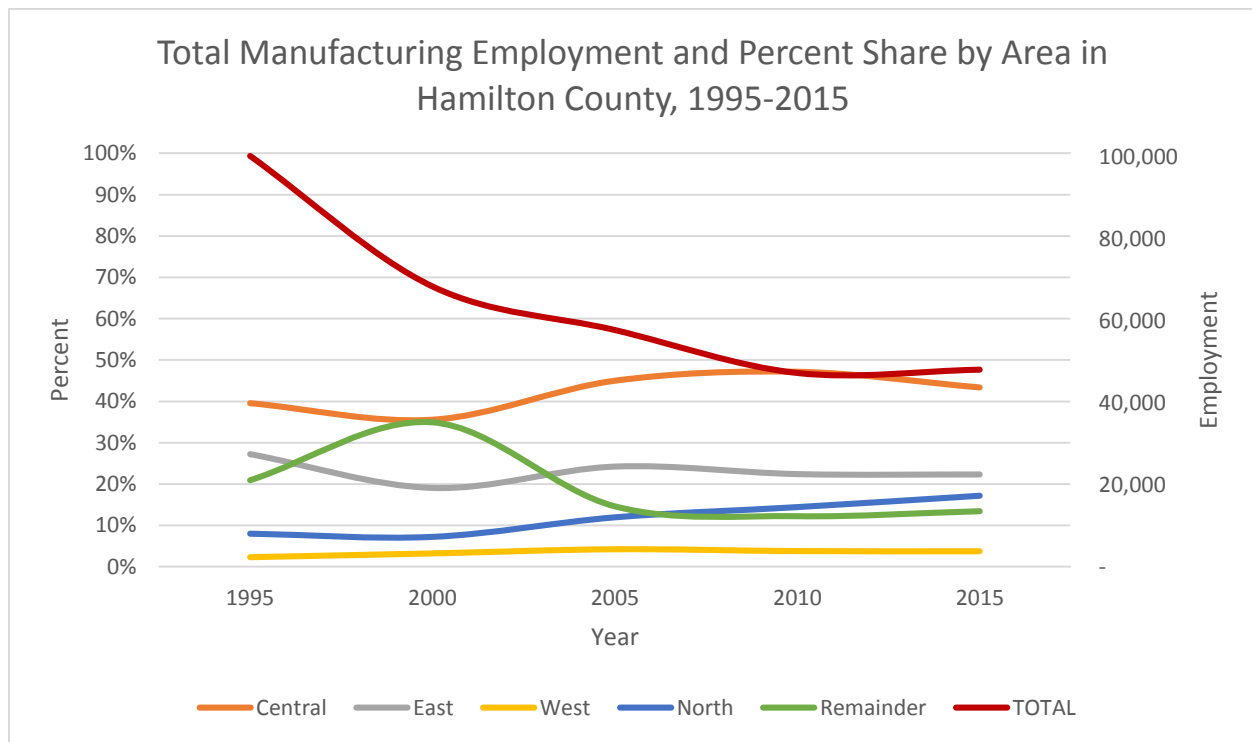
Figure 5



Present State of Manufacturing, Hamilton County

Manufacturing in Hamilton County continued to decline from 1995 until recently. The decline was accelerated during the early 2000s and then again during the 2008-2010 recession and the beginning of the recovery period. However, since 2010, there has been a stabilization of the industry within Hamilton County. Figure 6 shows establishment-level data for 1995-2015. The chart shows the level of total manufacturing employment in total, as well as the percent of the employed population by the study area.

Figure 6



Beginning between 2010 and 2015 there was a small uptick in the number of jobs in manufacturing within Hamilton County that continued through 2015.

The location and number of manufacturing establishments has changed substantially over the past 50 years. In 1969, the Central Region was the clear manufacturing hub, representing more than three times the number of establishments than any of the other three regions. Additionally, the Central Region in 1969 represented more than half of all manufacturing in Hamilton County. Table 11 shows the number of establishments by region in 1969 and 2015.

Table 11

**Number of Establishments by Region
1969 and 2015**

	Establishments	
	1969	2015
Central	858	426
East	252	203
West	4	49
North	28	104
Remainder	431	294
Total	1,573	1,076

The proportion of establishments lost from 1969 through 2015 is not homogenous among the regions. The Central Region lost more than half of the total establishments and the East Region lost approximately 20 percent. However, both West and North regions grew substantially, from 4 establishments to 49 and 28 to 104, respectively. These changes can be explained by the decentralization of goods-producing establishments throughout the County, as well as the long-term effects of population growth relative to property value.

Table 12 shows the number of acres within each focus region and the remainder of Hamilton County by the land use codes for industrial uses. The industrial acreage shows the heavy and light industrial land uses as depicted in Figure 7. Additionally, the percent of total acreage for industrial use has been calculated. There is a clear relationship between the most heavily industrial areas in terms of land use and the number of current business establishments for manufacturing.

Table 12

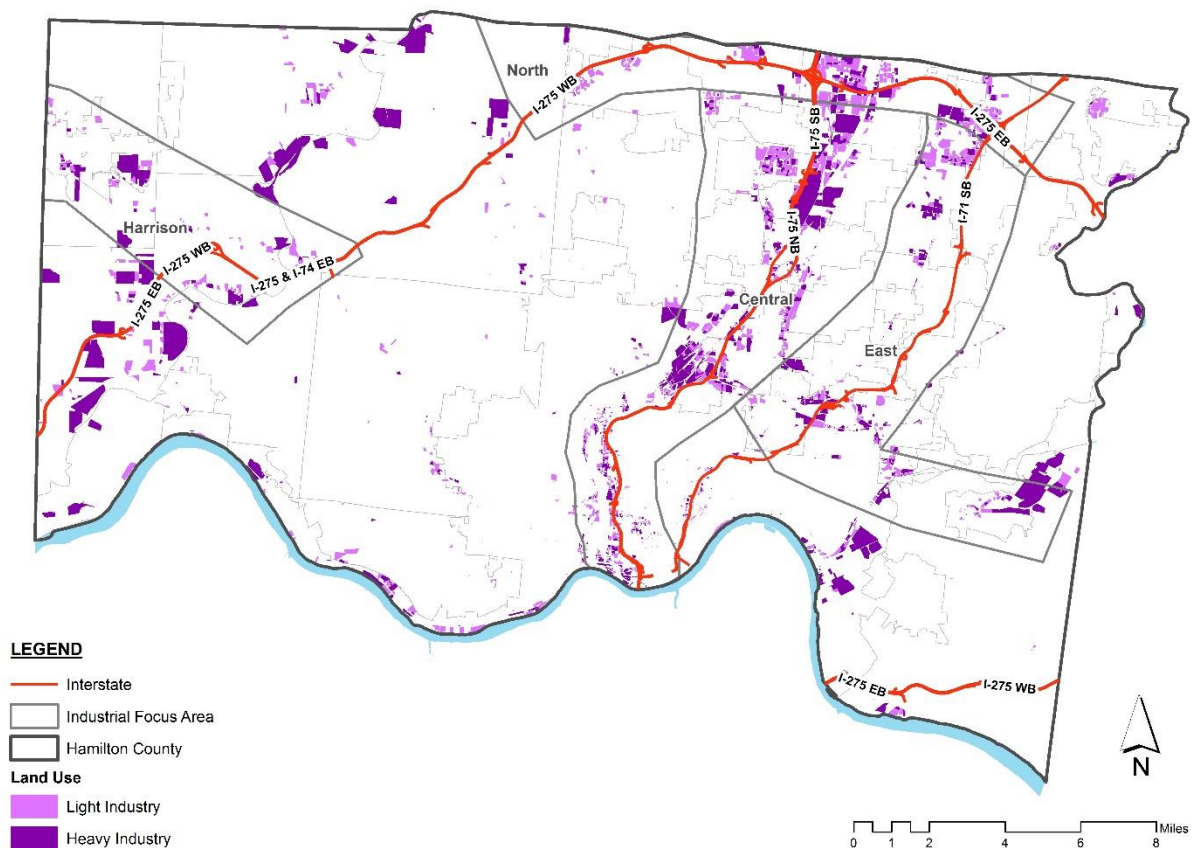
Acreage of Industrial Land Uses within Hamilton County and Focus Regions

	Industrial Acreage	Total Acres	Percent Industrial
Central	4,516	16,098	28%
East	2,294	16,144	14%
West	1,140	32,874	3%
North	1,878	27,099	7%
Remainder	5,784	172,105	3%
Total	15,612	264,320	6%

Source: CAGIS, 2015

Figure 7 shows the industrial land uses within the focus areas. Interstate-75 and Interstate-275 are the main manufacturing thoroughfares within the County and Region. The West focus area is by far the most dispersed, with a number of sites located further from the interstates. The East Region also has a number of off-highway manufacturing sites, mainly in the southeastern portion.

Figure 7



Methodology

Economic impact figures represent the effects that a given development project and its associated economic activities have upon a surrounding community. The dollars spent by an organization and its employees circulate within a local economy through the purchase of goods and services provided by local businesses, which are in turn spent at other establishments and by local households. A given industry's output in the local economy is defined as the total dollar figure that is spent within the local economy to make a final product. Therefore, a project's final output calculation shows all the dollars that are newly flowing in the local economy to other industries and households as a result of the project's new activities.

The Economics Center calculated the output of the operations and construction impacts using a variety of data sources concerning employment, wages, and output. These data were used in an input-output model, which measures goods and services produced in each industry and the use of those goods and services by other industries and households.

Input-output models give a picture of the direct and indirect impacts of a given business or organization. The direct impacts of the operations are calculated using employment, wages, and the economic output. The construction impacts are similarly calculated using the cost of construction of the proposed redevelopment of 2,000 acres for manufacturing use. The types of manufacturing developments used in the proposed redevelopment are of a similar makeup to the composition of manufacturing within Hamilton County currently. Finally, the direct and indirect impacts of inter-industry relationships created additional indirect impacts due to the spending of private households.

Multipliers are figures that represent all the inter-industry and household economic relationships measured in the input-output model. For every dollar spent by a given organization in a particular industry, multipliers reflect how many more dollars will be spent in a local economy by other businesses and households, thereby determining the total economic impact of a project or investment. The multipliers reflect two sets of economic impacts: i) the direct effect number of jobs and wages, and ii) the final effects, which add the indirect impacts to the direct impacts.

For this project, multipliers were derived from an input-output model created by the Bureau of Economic Analysis (BEA), a part of the U.S. Department of Commerce. This model, its constituent tables, and resulting multipliers are part of the BEA's RIMS II project (Regional Industrial Multiplier System), which covers both the state and county levels throughout the United States.

Each industry in a given locale has its own multiplier, reflecting its relationship to the rest of the local economy. Redeveloping the sites for future manufacturing operations represents activity in a number of different industries, and applying the relevant multipliers for each industry allowed the Economics Center to create a realistic picture of the development's economic impact on the local economy.

For example, if Retail Trade has a final-demand spending multiplier of 1.58, every \$1 million spent by that industry in Hamilton County generates an additional \$580,000 of economic activity. Additionally, this industry has a direct-effect employment multiplier of 6, so for every 1 job created in Retail Trade, approximately 6 other jobs in the economy are supported annually.

Economic Impact Analysis and Results

Based on data provided by the *Directory of Ohio Manufacturers, 1969*, the Economics Center has calculated the number of jobs, earnings, and economic output within Hamilton County. Due to address changes and latitude/longitude suppression, the Economics Center aggregated the four study areas for the estimate of the 1969 impact.

In 1969, more than 145,000 individuals were directly employed within the manufacturing sector within the analysis area. Those 145,000 jobs were responsible for a direct output of over \$18 billion in 2015 dollars. Additionally, the total direct earnings were over \$4.7 billion in 2015 dollars.

Table 13

Hamilton County Manufacturing Output, 1969 (In 2015 Dollars)

	Employment	Earnings	Output
Direct	145,987	\$4,783,118,722	\$18,343,929,855
Indirect	553,757	\$8,680,403,865	\$87,733,206,880
Total	699,744	\$13,463,522,587	\$106,077,136,735

The total employment impact of manufacturing in 1969 was nearly 700,000 direct and indirect jobs across manufacturing and all other industries, with \$13.5 billion in earnings, and over \$100 billion for the regional economy. The manufacturing sector at the time was providing nearly half of the jobs for the County and creating a substantial amount of wealth.

Employment within the focus areas in 2015 was approximately 50,000 people. However, these 50,000 workers, created more than twice the direct economic output as 145,000 individuals did in 1969, with \$3.6 billion in direct wages and \$40 billion in direct output.

Table 14

Hamilton County Manufacturing Output, 2015

	Employment	Earnings	Output
Direct	48,495	\$ 3,633,274,124	\$ 39,901,547,261
Indirect	66,259	\$ 3,855,299,643	\$ 25,190,189,644
Total	114,754	\$ 7,488,573,767	\$65,091,736,905

The total impact of manufacturing in Hamilton County in 2015 was \$65 billion, with more than 114,000 total jobs and over \$7.4 billion in total earnings. While the direct manufacturing output of 2015 is nearly double that of 1969, there is a significant gap between direct and total employment, earnings, and total output.

These differences stem primarily from one factor: average wages. Table 15 shows the average wages (in 2015 dollars) of manufacturing in 2015 and 1969, as well as the average wages of indirect and total positions created by the manufacturing output.

Table 15

**Average Wages in Direct Manufacturing Jobs, Indirect,
and Total 1969 and 2015**

	1969	2015
Direct Jobs	\$32,764	\$74,920
Indirect Jobs	\$15,675	\$58,185
Total Jobs	\$19,241	\$65,257

In 2015, the average manufacturing position was paid nearly \$75,000, more than twice the inflation-adjusted \$32,000 average salary of a 1969 manufacturing worker. This difference is less staggering when taking into account the two-fold gender-gap. The 34,000 women employed in manufacturing in 1969 were paid on average \$14,000 per year while men in the same time period were paid \$38,500. This pay disparity does not directly capture any differences in the types of labor performed by men and woman in 1969.

Based on the direct outputs of 1969 and 2015, in combination with the differences in wages and employment, it is apparent that current-day manufacturing has experienced economies of scale, technological improvements, and vast gains in labor productivity. Advanced manufacturing represents approximately 10-15 percent of present day manufacturing and boasts higher salaries than traditional manufacturing.

Tables 16, 17, and 18 below explain the direct, indirect, and total output, employment, and wage impacts in 2015 for the four manufacturing regions, as well as the remainder of Hamilton County. There are substantial differences between the regions and the remainder, with the four regions commanding the majority of manufacturing output and employment within the county.

The Central Manufacturing Region represents more than half of the direct output at more than \$15 billion. The East and North Regions make up approximately \$19 billion combined, whereas West represents just under \$1 billion in direct output. The remainder of Hamilton County provides approximately \$4.7 billion.

Table 16

Direct, Indirect, and Total Output by Manufacturing Region, 2015

	Direct Output	Indirect Output	Total Output
Central	\$15,009,641,198	\$10,124,463,976	\$25,134,105,174
East	\$6,517,949,821	\$4,381,327,570	\$10,899,277,391
West	\$970,863,877	\$566,635,220	\$1,537,499,097
North	\$12,617,383,755	\$7,141,908,355	\$19,759,292,110
Remainder	\$4,785,708,612	\$2,975,854,524	\$7,761,563,135
Total	\$ 39,901,547,263	\$ 25,190,189,645	\$ 65,091,736,907

The total economic impact within the Central Region is \$25 billion, with the other three regions making up more than \$32 billion and the remainder accounting for nearly \$8 billion.

Table 17 shows the direct, indirect, and total employment by manufacturing region. Again, the Central Region is the largest single contributor of direct jobs with nearly 17,000. The other areas make up a combined 31,600 positions. However, due to the types of manufacturing employment and subsector differences, the Central Region provides more than 40,000 total jobs whereas the other regions and the remainder of Hamilton County provide almost 75,000 total jobs. This is due to the different types of manufacturing requiring varying inputs, differences in wages, and having different inter-industrial needs for goods and services.

Table 17

Direct, Indirect, and Total Employment by Manufacturing Region, 2015

	Direct Employment	Indirect Employment	Total Employment
Central	16,824	24,143	40,967
East	10,451	13,473	23,924
West	1,842	1,846	3,688
North	11,761	18,054	29,815
Remainder	7,617	8,744	16,361
Total	48,495	66,260	114,755

Direct earnings in manufacturing in the entirety of Hamilton County totaled more than \$3.6 billion in 2015 and total earnings of over \$7.4 billion. The West Region accounts for approximately \$95 million in direct and \$182 million in total earnings. There are differences in the ratios of direct earnings to total earnings between the regions due to the different make up of manufacturing sectors and subsectors within each region. The Central and North Manufacturing Regions make up more than half of the direct, indirect, and total earnings in 2015.

Table 18

Direct, Indirect, and Total Earnings by Manufacturing Region, 2015

	Direct Earnings	Indirect Earnings	Total Earnings
Central	\$1,348,474,993	\$1,520,360,883	\$2,868,835,876
East	\$634,826,442	\$671,443,237	\$1,306,269,679
West	\$94,614,957	\$87,395,806	\$182,010,763
North	\$1,090,859,736	\$1,117,710,145	\$2,208,569,881
Remainder	\$464,497,997	\$458,389,571	\$922,887,568
Total	\$3,633,274,125	\$3,855,299,642	\$7,488,573,767

In addition to evaluating the overall economic impact of manufacturing in Hamilton County, the Economics Center analyzed the average wages across the individual regions and the remainder of Hamilton County. The direct wages represent the average wage paid to an individual employed within manufacturing in the respective region, whereas the indirect and total wages include individuals who work within a support industry or manufacturing, but they may not necessarily be directly employed within manufacturing.

Table 19

Average Direct, Indirect, and Total Wage by Manufacturing Region, 2015

	Average Direct Wage	Average Indirect Wage	Average Total Wage
Central	\$80,152	\$62,973	\$70,028
East	\$60,742	\$49,836	\$54,600
West	\$51,359	\$47,351	\$49,353
North	\$92,755	\$61,910	\$74,077
Remainder	\$60,979	\$52,424	\$56,407

Direct wages show a great deal of difference between the regions in terms of highest and lowest average wages. In the West Region, the average manufacturing position has a wage of \$51,300 per year. The North Region, the highest average wage region, boasts wages of more than \$92,700— 50 percent higher than the average. This difference is the most pronounced in direct wages, whereas indirect and total show considerably less differences. This is due to the direct wages from manufacturing varying by the types of manufacturing. The Central and Northern Regions are comprised of higher wage manufacturing jobs than the other regions. However, the indirect jobs that support manufacturing, regardless of the type, are more homogenous. This results in the range of differences between direct and indirect wages across regions. Moreover, the wages and employment data for 2015 are collected at the establishment level throughout the State of Ohio and then analyzed by geographic region. Therefore, these numbers represent an accurate portrayal of the direct employment and wages within each study region. The indirect and total figures are created using

multipliers at the county level, and thus better estimate the regional impact, as opposed to constraining the impact within each manufacturing region. This controls for the possibility that an individual may work in the Eastern Region, live in the Central, and do his/her grocery shopping in the North Region.

Proposed Expansion, Operations and Construction

The Economics Center prepared the economic impact for a proposed redevelopment of 2,000 acres of industrial and manufacturing land for future manufacturing operations using acre coverage ratios of 33 percent¹⁵. This means that for every acre of developable land, approximately one third of an acre is covered with a manufacturing footprint. The remainder is used for infrastructure such as roadways, parking lots, green spaces, access ways, and utilities.

The Port of Greater Cincinnati Development Authority provided statistics concerning the number of workers per thousand square feet. The Economics Center independently found these numbers to be consistent with industry standards. Approximately one worker is required per one thousand square feet (898.5 square feet per employee¹⁶). Combined with the coverage ratio and contingency, this results in approximately 32,000 new jobs within the manufacturing sector.

While this increase in employees will not be immediate, it is estimated to have a substantial impact on the relevance of manufacturing within the County and Region. The 32,000 direct jobs will result in more than \$2.2 billion in direct earnings and a direct economic output of nearly \$12 billion. The total impact from the redevelopment will exceed 76,100 jobs, \$4.6 billion in earnings, and \$40.1 billion in economic output.

Table 20

Hamilton County Impact due to Operations of Proposed Manufacturing Redevelopment			
	Employment	Earnings	Output
Direct	31,997	\$2,262,599,766	\$11,993,813,254
Indirect	44,167	\$2,375,874,656	\$28,202,488,954
Total	76,164	\$4,638,474,422	\$40,196,302,208

Table 21 shows the final direct, indirect, and total impact figures for the Hamilton County manufacturing sector, including current manufacturing output and the proposed redevelopment. These figures represent the economic impact of operations for manufacturing within Hamilton County

¹⁵ Figure provided by the Port of Greater Cincinnati Development Authority

¹⁶ 898.5 square feet per employee is calculated by taking a weighted average of worker per square foot for advanced and traditional manufacturing.

when the 2,000 acres are built out, on-boarded, and staffed at the estimated capacity. These figures do not assume that there will be a shortage in labor force or demand for locally produced goods.

In 1969, 145,000 individuals were employed within manufacturing, with \$3.4 billion in direct earnings and an economic output of \$18 billion. The direct impact of the current manufacturing establishments plus the proposed future redevelopment will be approximately 80,500 employees, with earnings totaling \$5.9 billion, and direct economic output of \$51.9 billion. Just over half of the employees required in 1969 will create more than 100 percent of additional total output and earn 50 percent more in total wages.

Table 21

Hamilton County Total Impact, including Operations of Proposed Manufacturing Redevelopment and Current Manufacturing Outputs			
	Employment	Earnings	Output
Direct	80,492	\$5,895,873,890	\$51,895,360,515
Indirect	110,426	\$6,231,174,299	\$53,392,678,598
Total	190,918	\$12,127,048,189	\$105,288,039,113

The proposed manufacturing redevelopment will culminate in 80,400 direct manufacturing jobs with an average wage of \$73,200 per year and 190,900 total jobs, with an average wage exceeding \$63,500. This will provide for a significant increase in local buying power, bolster the number of skilled and unskilled labor workers, and provide jobs for individuals who have gone through technical training. However, there is still a significant difference between the expected wages of advanced and traditional manufacturing positions.

After construction is complete, the properties will start generating new property tax revenue for Hamilton County. Based on a 70 percent cost-to-value ratio, the estimated market value of the construction of the 2,000 acre sites is approximately \$2 billion. Using the millage rates provided by Hamilton County for taxes paid in 2015, the Economics Center projected the total property tax impact to be approximately \$54 million per year. Table 22 includes the new property tax collections by County, School District, Local Jurisdictions, and Special Districts.

Table 22

Fiscal Benefits, Countywide Impact Based on Proposed Manufacturing Redevelopment	
Hamilton County	\$11,594,000
School Districts	\$37,703,000
Local Jurisdiction	\$5,160,000
New Property Tax Revenue	\$54,457,000

Table 23 shows the breakdown of total new property tax revenues by focus area and the remainder of Hamilton County.

Table 23

Hamilton County Fiscal Benefits by Area, Proposed Redevelopment	
New Commercial Property Tax	
Central	28,527,000
East	10,837,000
West	2,451,000
North	4,849,000
Remainder	7,793,000
Total	54,457,000

This estimate also includes the Hamilton County rate, the Great Parks rate (assuming the 2017 expiration does *not* take place and the levy is reinstated), and the Cinti-Hamilton Library rate. Individual school districts will also benefit based on respective local millages. This analysis was completed by estimating the total developed land based on expected localization of employees and establishments, averaging each respective Area's township or city rates, and computing the expected assessed value and tax revenue. For example, if a township was split between multiple Areas, the Economics Center calculated the expected employment proportions and applied those to the calculation of assessed property value and tax millage.

Table 24 shows the amount of expected revenue to townships, villages, and cities resulting from the increase in property tax. These calculations were completed similarly to the total benefit calculations above and take into account property tax rates within each area and local jurisdiction.

Table 244

Local Jurisdiction Fiscal Benefits by Area, Proposed Redevelopment	
New Commercial Property Tax Revenue	
Central	\$2,317,000
East	\$1,117,000
West	\$464,000
North	\$267,000
Remainder	\$995,000
Total	\$5,160,000

The total tax base enhancement for local jurisdictions resulting from new property tax revenue is approximately \$5.1 million. Based on twenty years of cost of community services research completed by the American Farmland Trust pertaining to land-use and costs, approximately 70% of the new

property tax revenue will be seen as 'profit'. In other words, 30% of the collected new property taxes will be used to pay direct public service costs whereas the other 70% can be used to provide additional services to other land uses.¹⁷

In addition to countywide property tax impacts, the proposed redevelopment of manufacturing and re-industrialized establishments will have significant impacts on the income tax collections within individual Hamilton County jurisdictions.

The income tax impacts per municipality were calculated by evaluating the amount of current under- and unutilized industrially zoned land, the proportion of industrially zoned land in 2015 to the amount in 1969, the increases and decreases in jobs, and the changes in the number of business establishments in 1969 and 2015. This results in a blended multiplier that could be applied to the total increases in jobs and wages to calculate jurisdiction-level job shares while still taking into account the different income taxes as well as number of jobs across jurisdictions.

While Cincinnati and Evendale are the top two recipients from the redevelopment in terms of jobs, earnings, and income taxes, the municipalities differ in how they achieved these gains. Cincinnati lost approximately 60,000 jobs in manufacturing from 1969 to 2015, resulting in just over 15,000 direct jobs in 2015. Evendale, however, gained more manufacturing jobs by a margin of 3-to-1 than any other local community, an increase of more than 5,000 jobs.

Table 25 shows the aggregated new income revenue by jurisdiction for the four focus regions and the remainder of the County. The Central Region will receive an increase of \$18.5 million, the most of any focus area. The next largest increase is in the East Region.

Table 25

Income Tax Collections from Direct Manufacturing Jobs, 1969, 2015, and Proposed New Due to Redevelopment			
	1969	2015	Proposed New
Central	\$42,143,478	\$20,925,524	\$18,477,357
East	\$18,461,870	\$9,284,291	\$6,528,867
West	\$11,085	\$869,958	\$1,132,745
North	\$997,813	\$11,744,852	\$2,362,545
Remainder	\$10,228,170	\$5,521,520	\$4,748,920
Total	\$71,842,416	\$48,346,145	\$33,250,434

*Figures are not adjusted for Commercial Tax Exemptions

The fiscal impact of the redevelopment will result in an additional \$33 million in new income tax revenue for local jurisdictions throughout Hamilton County. This represents a 67 percent increase in

¹⁷ http://www.farmlandinfo.org/sites/default/files/COCS_08-2010_1.pdf

total manufacturing income tax collections compared to 2015, resulting in approximately \$9.7 million more in income tax collections when fully on-boarded than the collections estimated in 1969.

While the operations impacts will contribute substantially for year-over-year tax and wealth generation, the construction impacts will generate a one-time injection of jobs, earnings, and output to the region. The Economics Center prepared the construction benefits in the aggregate to most accurately portray what the impact will be during the time period of redevelopment. It is likely that the construction will occur over 20-30 years, as it will be reactive to demand and constrained by human and financial capital.

Table 26

Hamilton County Impact due to Construction of Proposed Manufacturing Redevelopment

	Employment	Earnings	Output
Direct	12,724	\$672,171,100	\$3,397,680,000
Indirect	9,070	\$335,074,192	\$1,863,170,100
Total	21,794	\$1,007,245,292	\$5,260,850,100

The estimated direct cost of the construction is approximately \$3.4 billion, which will create 12,700 direct jobs. This was determined by an industry standard for the cost of construction, soft costs, and outfitting of the newly constructed or renovated spaces. The price per square foot figure is estimated to be \$98, taking the cost of labor into account. The total economic output from the cost of construction is \$5.3 billion, generating nearly 21,800 total jobs. The construction jobs directly created by the building of the sites have an average wage of \$52,800 per year, while the indirect jobs average \$36,900 per year, resulting in a total average of approximately \$46,200 per year.

Concluding Remarks

The redevelopment of Hamilton County, particularly the four focus areas, is expected to improve the economic vitality of the region, as well as increase job competitiveness, enhance the tax base, and provide opportunities within Hamilton County. Upon completion, the redevelopment in total will be responsible for more than 76,000 jobs, \$4.6 billion in earnings, and \$40 billion in economic output. These operations are expected to be ongoing.

Additionally, one-time benefits of more than 20,000 jobs, \$1 billion in earnings, and \$5 billion in economic output will result from the construction costs associated with the redevelopment of nearly 2,000 acres of land into manufacturing uses.

The wages from each direct job created by the construction and operations can, on average, support a family of four at over 200 percent of the Federal Poverty Level for 2015. This means that for every job, an individual will be able to solely provide for three other individuals. The quality and range of jobs created will allow for individuals from a wide array of education and skills to have high quality, stable employment. A substantial proportion of the jobs created will not require post-secondary education, but a number of the positions in advanced manufacturing may require a baccalaureate or advanced degree.

In addition to the operations and construction impacts, the redevelopment will create tax revenue to the benefitting townships, cities, and the County. The new property tax collections will support the County as a whole, including the Great Parks initiative, local school districts, roadways and bridges, as well as fire, police, and EMS. Further, local jurisdictions will receive over \$5 million of the \$54 million in new property taxes to support community services costs, public administration, and to improve the quality of life of residents of Hamilton County Communities. Also, \$37.7 million of the new property tax revenue will go to support local school districts across Hamilton County.

Even though manufacturing has declined in Hamilton County and across the country, it continues to play a significant role in the local economy. Additionally, the resilience of the remaining manufacturing companies, as well as the transportation, distribution, and managerial infrastructure provide evidence that a large-scale redevelopment is viable. The proposed expansion will position Hamilton County as a national leader in manufacturing, and the re-industrialization will provide jobs for generations. While manufacturing is currently a transitional industry, the re-industrialization will solidify the Cincinnati MSA as a best-in-practice area for planning for the future of a regional economy.

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