

9.0 Industrial/Manufacturing

9.1 Introduction

Industry was key to Cuyahoga County and Cleveland's growth in the nineteenth and early twentieth century. Throughout the county, individual townships established local industries including sawmills, gristmills, stone quarries, and various factories. One such township, Brooklyn boasted several dryer companies, which manufactured super phosphate used in fertilizer, in the 1860s; a boots, shoes, and slippers manufacturing plant; and nurseries (Johnson 1879). Chagrin Falls claimed an axe and edge-tool factory, wooden bowl factory, sash factory, wheel and wheel-head factory, woolen factories, paper factories, flour mills, and saw mills by 1847 (Johnson 1879). However, the greatest center of industry in Cuyahoga County became Cleveland, established in 1796.

The city began as an agricultural village and commerce center but became one of the major centers of industrialization in the US by 1860. One of the earliest industries was the manufacture of farming products, which included barrels, farm implements, household products, flour, and other products (ECH 2017o). Iron and the manufacture of iron products became the primary industry in Cleveland as early as 1832, when the Ohio and Erie Canal was completed to the city (ECH 2017o). The canal provided greater access to raw materials and made it easier to ship products from the city's factories. Other industries that thrived during the late nineteenth into the early twentieth century included the machine tool industry, the automotive industry, the chemical industry, and the garment industry. The railroad system became vitally important to the growth of Cleveland's industrial economy and provided better, faster, and more reliable transportation service for Cleveland's factories. The boom of Cleveland's industrial period spanned from 1860 to 1930 (ECH 2017o).

9.2 Iron and Steel Industry

In 1820, Cleveland had a few iron related businesses which included wagon makers, a shoemaker, a saddle maker, and few other business ventures; however, by 1837, Cleveland had grown to include four iron foundries producing steam engines and other various enterprises (ECH 2017o). By 1860, iron was the most important product in Cleveland and the Cuyahoga Steam Furnace Company was the largest industry (ECH 2017o). Iron ore was discovered in Michigan's Lake Superior region in 1844 and the most profitable method of handling the ore was to ship it in bulk to furnaces for smelting. One such place was Cleveland, thanks to the opening of the Ohio and Erie Canal and the Sault Ste. Marie Canal in 1855 (ECH 2017p). Local Cleveland citizen, Samuel Livingston Mather, was the driving force behind one of the most profitable mining operations, Cleveland Iron Mining Company and the man most often credited with the beginning of the ore trade in Cleveland.

The Cleveland Board of Trade released an annual report in 1884 which tallied approximately 147 iron and steel manufacturing businesses in Cleveland. In addition, the average workforce was 14,000 workers and the total value of products was estimated at \$21.5 million (ECH 2017p). The industry continued to grow and expand with large companies establishing dominance by 1899, including J.P. Morgan's U.S. Steel Corporation.

The early twentieth century saw continued growth with new companies and expansion of settled companies. One of the largest mergers occurred in 1901 included 34 small companies in Ohio, Indiana, Illinois, and Alabama and resulted in the formation of the United States Steel Corporation (Ohio Steel Council 2014). Included in the merger was J.P. Morgan's

Federal Steel, which had previously acquired the Cleveland Rolling Mill Company in 1899. The facility was expanded by U.S. Steel Corporation in 1907 and 1908, creating a large industrial park containing large furnaces, refinery building, and offices.

Beginning in 1913, the Cleveland-based Steel Improvement Company was dedicated to, “testing and enhancing the properties of steel through the use of thermal cycles” (Dill 2017). At the same time, the nearby Forest City Machine Company manufactured metal hardware. For this and many other wartime contributions, SIFCO was awarded the ‘E’ Pennant for Defense Manufacturing Excellence, the highest such honor bestowed on manufacturing entities, by President Roosevelt in 1942” (Dill 2017). After the end of the war, SIFCO Industries resumed their goal to improve steel. In 1949, they became the first company to forge titanium.

Cleveland steelmaker, Charles A. Otis, studied steelmaking practices in Europe and organized the Otis Iron & Steel Company in 1873. The company opened a large factory on the lakefront at East 33rd Street and introduced mechanized changing. In 1912, a 330-acre site along the Cuyahoga River and adjacent to the Cleveland Furnace Company’s blast furnace and coke plant was purchased for the construction of a new mill. The American Bridge Company built and constructed nine buildings on the site in 1913-1914, including a brick and steel furnace and mill building, stock house, machine shop, smith shop, millwright office, turbine house, pump house, and power house (Bluestone 1978). In 1928, president Elroy J. Kulas expanded production of steel to 890,000 tons (ECH 2017q). The widest continuous hot strip mill was built by the Otis Iron & Steel Company in 1932, which allowed the company to continue through the Great Depression. Pittsburgh's Jones & Laughlin Steel Corporation purchased the Otis in 1942 and expanded the Lakeside plant after WWII. The original furnaces were replaced, and new mill buildings were constructed in the 1950s and 1960s.

Production peaked in the 1970s with a total of 3 million tons of steel produced yearly (ECH 2017q).

The Republic Steel Corporation was founded by Cyrus Eaton and William G. Mather on April 8, 1930 in Youngstown, Ohio (ECH 2017r). Led by president Tom M. Girdler, moved its headquarters to Cleveland after it acquired a local Cleveland business, Corrigan-McKinney Steel Company, in 1935. Republic Steel Corporation acquired the Corrigan-McKinney plant along the Cuyahoga River, but in 1937, the company built a continuous strip mill in Cleveland. The company would continue to expand and enlarge its Cleveland plant, which made it one of the ten largest steelmaking plants in the U.S. The company survived the economic hardships of the Great Depression of the 1930s and the rising worker tensions with steel workers. Republic Steel continued to thrive through the 1940s, WWII, and into the 1950s until the 1960s and 1970s when the foreign steel competition, wage demands from workers, and environmental codes increased (OHC 2017d). The 1960s and 1970s proved difficult times as foreign steel competition increased and wage demands from workers and increased environmental codes. The Republic Steel Company was the 5th largest steel producer when it merged with Jones & Laughlin to create LTV Steel in 1984 (EHC 2017r; OHC 2017d).

The American economy’s high demand for iron and steel products following WWII caused the industry to thrive. Cleveland’s steel industry employed approximately 374 workers in 1860, which increased to over 30,000 workers following WWII (ArcelorMittal 2017). More than two-thirds of the world’s steel product was manufactured in the U.S. in 1945 and Cleveland was a large contributor. Neighborhoods soon sprung up to accommodate the increased numbers of workers, including Tremont and Slavic Village. These worker housing neighborhoods generally consisted of small, identical houses set approximately the same distance back from the streets. The uniformity of the houses varies in

style from neighborhood to neighborhood. The Tremont neighborhood was located adjacent to the large the Jones & Laughlin Steel Corporation, Cleveland Works factory, which was readily visible with tall, billowing smokestacks rising above the worker houses (CPD 2016). The neighborhood built the Merrick House as a community center with programs for European immigrants to transition with classes, childcare for children, and community projects, including gardens for the residents. In addition, bathing facilities to provide clean, hot water to local residents were built in Tremont and other neighborhoods and run by the City. The large industrial centers contained multiple refinery buildings, offices, and surrounding worker housing, which created pocket neighborhoods throughout the city of Cleveland. The steel industry continued to grow and expand in the 1950s and 1960s, including the construction of taller blast furnaces and increased output. Many existing plants expanded with taller smokestacks and larger complex industrial parks.

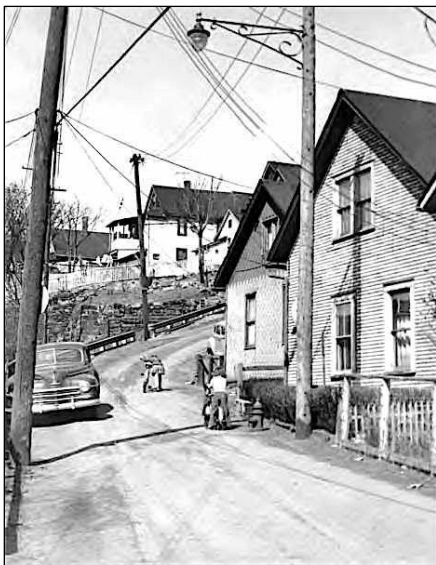


Figure 9-1. 1956 Street scene from the Tremont area; most of this area was razed for interstate development (Cleveland Press Collection, Michael Schwartz Library, Cleveland State University)

The steel and iron industry thrived until the 1970s, when severe problems plagued the entire American iron industry (ECH 2017p).

These problems included inflation, foreign steel imports, increasing environmental regulations, lagging productivity, and rising labor costs. Many steel and iron companies had to close factories, including U.S. Steel, which closed its Cuyahoga Works and abandoned its historic Central Furnaces.

The iron and steel industries remain the current number one lead industry in Cleveland. The industry had several setbacks in the 1980s and it continues to be the economic mainstay for Cleveland. In 1992, the industry employed approximately 42,668 people in the primary iron and steel industry and in the manufacture of prefabricated metal products (Pledger 2017).

9.3 Machine Tool Industry

The machine and tool industry began in the early 1900s and included the production of power-operated, metal-working machines (ECH 2017s). These companies produced the machines that allowed other industries, such as the iron and steel industry, to expand and flourish in Cleveland. The machine tool industry thrived from 1880 to the 1940s. The growth and expansion of the machine tool industry began with the industrialization of the economy as more industries began producing hardware, sewing machines, ships, bicycles, and later, automobiles. Each of these new technologies required a series of interchangeable parts, which needed specific tools to manufacture, operate, and repair the products. Following World War I, many of Cleveland's machine tool small companies were driven from the market following the economic downturn of the Great Depression. In addition, the automobile industry's concentration in Michigan caused many small machine tool manufacturers in Cleveland to close their doors as well (ECH 2017s).

One of the earliest companies to manufacture machine tools to meet specific manufacturing needs for market production was the Cleveland Twist Drill Company founded by Jacob D. Cox in 1883 (ECH 2017t). The company built a

factory at Lakeside and E.49th Street in 1888 and continued to operate it even after merging with the National Acme Company. The Cleveland Twist Drill Company produced drills and machine tools and in 1911 broke the world record for the fastest drilling of cast iron (ECH 2017t). In 1968, the Cleveland Twist Drill Company merged with the National Acme Company and became one of the largest machine tool manufacturers in the U.S. (ECH 2017t). Increased competition in the 1980s caused the company to restructure in 1982 and cut its workforce and holdings to include a stockroom and the two original plants in Cleveland, including the Cleveland Twist Drill Company plant on E. 49th Street.

The world leader of turret lathes and telescopes in 1928 was the Warner & Swasey Company, which moved to Cleveland from Chicago in 1881 (ECH 2017u). The company opened a shop on Carnegie Avenue near E. 55th Street and focused on producing turret lathes and telescopes, which was due primarily to co-founder, Worcester P. Warner's interest in astronomy. The company became famous in 1886 with the largest telescope of the time in California's Lick Observatory and large telescopes for the U.S. Naval Observatory and the Yerkes Observatory in Wisconsin. Diversification into textile machinery equipment construction and electronics occurred after WWII and by 1965, the company moved several of their operations to the village of Solon in the southeastern corner of Cuyahoga County. However, the recession of the 1980s caused the company to be sold to the Bendix Corporation, who closed several of the plants in Cleveland. After changing hands several times and closing additional Cleveland operations, the only remaining Warner & Swasey plant in Solon was closed in 1992.

The machine tools industry suffered a downturn following WWI, but those companies that survived the Great Depression were able to take advantage of the increase in production due to WWII (ECH 2017s). The boom years were over by 1950, but many companies could remain

healthy and the 1954 manufacturing census listed the machinery production industry second to among the leading Cleveland industries (ECH 2017s). With the downturn in the steel and iron industry in the 1980s, the machine tools industry also suffered. The industry was hampered by its lack of timely adoption of new technological developments and due to the increasingly global competition, many of the Cleveland companies closed their plants.

9.4 Automotive Industry

The city of Cleveland was a key player in the beginnings of the automobile industry in the U.S. and was only second to Detroit in the manufacture of automobiles, parts, and accessories in the twentieth century (ECH 2017o). The automobile was first developed in Germany and France in the late nineteenth century and the U.S. began its development in the early twentieth century. Early Cleveland automobile manufactures began as horse carriage and bicycle manufacturers, including one of the earliest, Alexander Winton, who developed an internal combustion engine automobile in 1897 (ECH 2017o). Winton was a Scottish immigrant who arrived in Cleveland in 1884 and began as a bicycle manufacturer in 1884. He founded the Winton Bicycle Company a few years after 1884 and the Winton Motor Carriage Company in 1897. Along with Thomas W. Henderson and George H. Brown, the company opened a factory on the corner of Belden Street and Mason Street (ECH 2017v). He began producing a standard model and sold his first automobile in 1898. Winton was known for his racing and made headlines as he drove from Cleveland to New York in 1899 accompanied by reporter Charles Shanks, who chronicled the journey (ECH 2017w). The first cross country automobile trip occurred in a Winton automobile in 1903 with Dr. H. Nelson Jackson and his chauffeur, Sewell K. Croker, who left San Francisco on May 23 and traveled through Oregon, Idaho, and Wyoming to arrive in New York on July 26 (ECH 2017x). By 1924, the company ceased making

automobiles for the general population and focused on developing diesel engines for ships.

The White Motor Company was one of the leading steam automobile manufacturers in Cleveland and was founded in 1876 by Thomas White. The company began as a sewing machine company, but soon transitioned into a truck and automobile manufacturing concern in 1900. In 1906, Thomas's three sons, Rollins, Windsor, and Walter, opened the White Motor Car Company in Cleveland. and was involved with the production of trucks during World War I. After a severe decrease in sales during the Depression, the efforts needed for World War II increased production. The White Motor Company manufactured military vehicles during the war. In the years following the war, the White Motor Company purchased smaller companies producing farm machinery and trucks (ECH 2017y). Sales increased by \$640 million between 1950 and 1967. A series of poor business decisions, including the purchase of Euclid, Inc. in 1968, forced the once thriving business to merge with White Consolidated Industries and restructure the company (ECH2017y). Eventually the business filed for bankruptcy in 1980.

The Cleveland area was an excellent location for automobile production in the 1910s and 1920s due to its access to companies specializing in machine tools, labor pool, access to materials such as rubber, glass, and steel, and standing as a transportation center (ECH 2017o). Cleveland was the second largest manufacturer city in the U.S. The design of the automobile up to the 1920s was a wooden carriage frame when it was replaced with an all-body steel frame. The Fisher Body Plant opened in 1922 and became the leading Cleveland factory for the production of steel bodies for the Cleveland Automobile Company and the Chandler Motor Car Company (ECH 2017z). The plant on Coit Road was opened in 1922 and produced 150 bodies a day. General Motors acquired the Detroit-based Fisher Body in 1926 and it produced bodies solely for General Motors until the plant closed in 1982.

The Fisher Body Euclid plant was obtained by General Motors in 1947 to produce bodies for Chevrolet, Pontiac, Buick, and Oldsmobile but was originally built in 1943 by the Cleveland Pneumatic Aerial Company to produce aircraft landing parts during WWII (ECH 2017z). The Euclid plant closed in 1993.



Figure 9-2. Auto assembly line at the Fisher Body Plant in Euclid (Cleveland Press Collection, Michael Schwartz Library, Cleveland State University).

The automobile industry thrived in the 1930s in Cleveland with approximately 50 industrial laboratories, which focused on developing and accessing parts and materials. Leading engineers and scientists were developing new technology, including battery research, heat-resistant steels for valves, and more. Part and accessory manufacturing increased in the years prior to WWII, but during the war, the industry shifted to military production and began producing trucks, automobile parts, and aircraft for the war (ECH 2017o). Following the end of WWII, the automotive industry settled back into making automobiles for the American public.

In 1949, General Motors Chevrolet Division opened a plant in Parma (CUY 1141617) (ECH 2017o). This was one of the largest Chevrolet plants built and was focused on producing transmissions. The plant continues to operate and employed approximately 1,500 workers in 2014 (Zurick 2017). Ford Motor Company also

built two plants in Cleveland in the 1950s and a foundry in Brook Park in 1953 (ECH 2017o). The Brook Park foundry produced most of Ford's 6-cylinder engines and all of its V-8 Mercury engines in 1953. Ford also opened a stamping plant in Walton Hills in 1954.

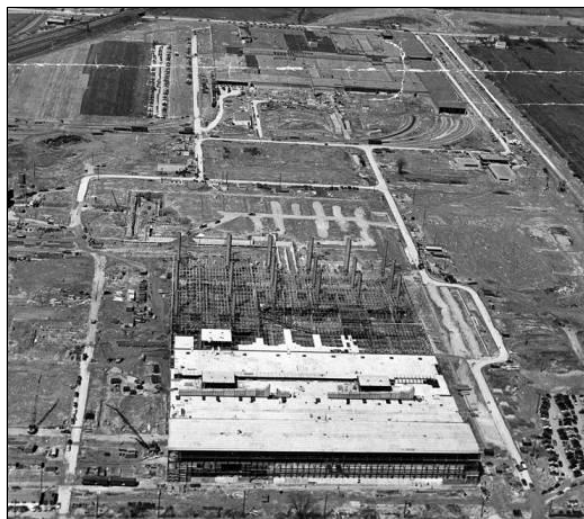


Figure 9-3. 1951 construction of Ford's Brook Park Plant (Cleveland Press Collection, Michael Schwartz Library, Cleveland State University).

The automotive industry reached its peak during the 1950s and 1960s. The manufacturing census of 1963 reported 59 motor vehicle assembly and equipment plants in Cleveland and estimated 13 percent of Cleveland's workforce were employed in the automotive industry (ECH 2017o). The automobile workers and other industrial workers began living and owning homes in the suburban explosion of the neighborhoods and towns during the 1950s through the 1970s (ECH 2017aa). New unions, including the United Auto Workers, helped members to gain a livable wage and job security, both of which increased the possibility of member's owning a suburban home. These suburban communities were made possible due to the increasing popularity of the automobile, which allowed residents to commute to the large industrial factories in the City of Cleveland. The 1980s saw overextension and the closure of several automotive plants; however, some plants continue to operate, including Ford's Brook Park and Chevrolet's Parma plant.

9.5 Chemical Industry

The homespun chemical industries that characterized the early years of Cleveland included dyeing, soapmaking, tanning, and bleaching (Spittler and Carrol 2017). However, the completion of the Ohio and Erie Canal in the 1830s and the expansion of the railroad system in the 1850s allowed oil, coal, and ore to be more readily accessible to the Cleveland area. The chemical industry began to develop on a market scale following the Civil War.

One of the first chemical industries in Cleveland was Eugene Ramiro Grasselli, who opened a sulfuric acid plant in 1867 and supplied oil refineries. Grasselli originally founded his company in 1839 in Cincinnati but moved his operations to Cleveland along the Cuyahoga River. He began acquiring his competition, the Cleveland Chemical Works, and other facilities prior to his death in 1882. However, his son, Caesar A. Grasselli continued the company under a new name, the Grasselli Chemical Company, in 1885 (ECH 2017cc). Grasselli diversified to include acetic acid, silicate of soda, fertilizers, and zinc and built or acquired plants across the U.S. During WWI, Grasselli Chemical began producing explosives. E.I. Du Pont de Nemours Company consolidated with Grasselli Chemical in 1928 with Caesar's son, Thomas S. Grasselli, as vice-president and a director of the new Du Pont. Grasselli Chemical Department took over Du Pont in 1936. The original Grasselli plant was in operation in 1984 as part of Du Pont's Chemicals & Pigments Department and continued to produce sulfuric acid, zinc chloride, sodium bisulfate, and silicates (ECH 2017cc).

Henry A. Sherwin and Truman Dunham joined with Edward P. Williams in 1870 to form Sherwin, Williams & Company, which would later become known as one of the leading paint companies, Sherwin Williams Company (ECH 2017dd). In 1873, the company purchased the Standard Oil Company's building on Canal Street and opened their first factory. The company began producing paste paints, oil

colors, and putty and by 1875 had developed a ready-mixed paint for market production. The company expanded to build additional factories in Newark, New Jersey, and Oakland, California by 1910. Expansion continued through the next six decades, including the introduction of a fast-drying, water-based paint for interior home use and the development of the paint roller in the 1940s. In 1942, Sherwin-Williams opened the Cleveland Kem-Tone paint manufacturing plant (Sherwin-Williams 2017). By 1964, the Sherwin-Williams Company was listed on the New York Stock Exchange. In 2016, Sherwin-Williams celebrated their 150-year anniversary (Sherwin-Williams 2017).

Three new chemical companies began in Cleveland between WWI and WWII, including Glidden Coating & Resins Division, the Ferro Corporation, and McGean-Rohco, Inc. (ECH 2017bb). Following WWII, the chemical industry was characterized by a period of internationalization, diversification, and mergers. However, the chemical industry was affected by the decline in the oil and iron-and-steel industries in the 1960s and 1970s. By 1947, Glidden boasted 35 factories, 26 research and control laboratories, and eight divisions; however, in 1966, the company was reduced to four divisions and sold many of its naval store interests and mills. In 1967, Glidden merged with SCM Corporation.

9.6 Conclusion

While Cuyahoga County retains many industrial complexes, companies, and jobs, the industry as a whole began a continuing decline after the war efforts of the mid-twentieth century. As the industry tries to carry on, many factories have shuttered with little hope of reinvigoration. For example, the Ford Stamping Plant in Walton Hills closed in recent years, and the community is hoping to redevelop the massive site to attract new companies, jobs, and growth to the area. Several of the extant mid-century industrial resources of Cuyahoga County were included in the current survey and include the Ford Stamping Plant (CUY 1130824) in Walton Hills,

the General Motors Fabrication Division (CUY 1141617) in Parma, the General Electric's former Lamp Glass Headquarters (CUY 1123422) in Richmond Heights, and approximately 15 other industrial buildings in Bedford Heights, Cleveland, and Westlake.



Plate 25. Water tower at the Ford Stamping Plant in Walton Hills taken November 2016.

9.7 Industrial/Manufacturing Survey Results

Industrial development put Cleveland on the map. Its prime location on the shores of Lake Erie provided convenient access for materials to arrive for production, and then export of finished goods. Industrial complexes were erected along the banks of the Cuyahoga River. The valley bottom areas, appropriately called "The Flats," provided copious room to establish industrial concerns with room for eventual expansion. The river also allowed barge traffic to move along the corridor with direct access to Lake Erie. Railroads brought in and moved out

additional materials and goods. Industrial development in The Flats occurred in the nineteenth century, and while additions and changes continued through the modern period, survey for this report focused on outlying areas where new industrial concerns were developed.

Northeast Ohio has a long history of automobile manufacturing and Cuyahoga County is no exception. The area still includes a functioning GM Metal Fabrication Plant and a shuttered Ford Stamping Plant. Each of these major complexes rely and relied on secondary complexes, likely not owned or operated by GM or Ford, to support the facilities. Therefore, smaller, light industrial buildings are near each facility.

Other industrial complexes in the region exist to meet residential, commercial, and other business needs. These business types are usually found grouped together in areas zoned for industrial uses and are near railroad tracks to receive and ship products. As truck traffic

increased in the twentieth century, these concerns were also often found near interstates and/or US highway routes that are capable of handling heavy vehicles.

Fieldwork surveyed 18 industrial resources, including large automobile manufacturing facilities, a former bottling plant, wastewater treatment facility, and several light industrial buildings with some retaining their original businesses, some currently being used for other purposes, and a few that are currently vacant (Table 3).

Table 3. Types of surveyed industrial resources

Industrial Building Type	Number Surveyed
Automobile	2
Manufacturer	
Bottling Plant	1
Wastewater Treatment Facility	1
Light Industrial Building	14



Plate 26. Ford Stamping Plant (CUY 1130824), constructed in 1954, 7845 Northfield Rd., Walton Hills.



Plate 27. General Motors Fabrication Division (CUY 1141617), constructed in 1949, 5400 Chevrolet Blvd., Parma.



Plate 28. Former Lamp Glass Department Headquarters for General Electric (CUY 1123422), constructed ca. 1959, 24400 Highland Rd., Richmond Heights.



Plate 29. Cleveland Builders Supply (CUY 1105124), constructed in 1959, 26481 Cannon Rd., Bedford Heights.



Plate 30. Former Graybar Electric Company (CUY 1110205), constructed in 1955, 1100 E. 55th St., Cleveland.

9.8 Further Survey Recommendations

As noted above, the Ford plant is no longer operational, and the Walton Hills community hopes to redevelop the site for a new use(s). Other industrial buildings surveyed during fieldwork are also vacant. Therefore, non-operational industrial buildings are in danger of severe damage due to neglect and/or demolition due to no feasible reuse plans. As these buildings typically sit on large parcels, communities are anxious to redevelop the sites to increase tax bases, bring back employment opportunities, and to remove derelict buildings and structures as “eye sores” and potential safety hazards.

Survey of additional industrial buildings beyond those areas covered during fieldwork for this report is recommended to further understand areas of industrial development in Cuyahoga County.