

CHICAGO SUSTAINABLE INDUSTRIES

A BUSINESS PLAN FOR MANUFACTURING

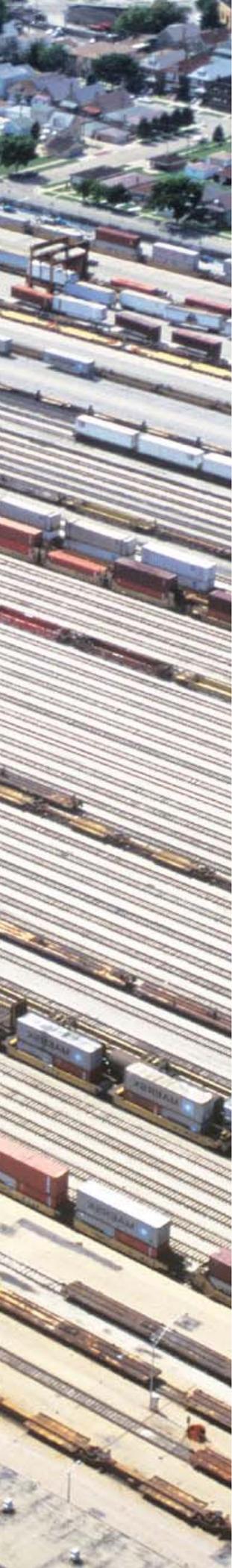
CITY OF CHICAGO
RAHM EMANUEL, MAYOR



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INTRODUCTION

Chicago Sustainable Industries: A Business Plan for Manufacturing (CSI) is the result of a three-year collaboration by industry leaders and local government agencies on a comprehensive strategy to reinforce and expand Chicago's manufacturing base. CSI's fundamental premise, that successful markets build from their unique and distinctive assets, directly aligns with "A Plan for Economic Growth & Jobs," released in 2012 by World Business Chicago under the direction of Mayor Rahm Emanuel. CSI refines the Growth & Jobs Plan by presenting additional City policies and strategies involving manufacturing, land use, public investment, partnerships and regulatory improvements to help ensure the sustainability and competitiveness of local manufacturers.

Manufacturing is evolving at an unprecedented pace due to intense global competition and rapid advancement in technology. While the dynamics of advanced manufacturing varies among private companies, the global economic landscape requires local government to proactively support and facilitate production-oriented businesses. Chicago is home to approximately 2,700 of these types of companies, 99 percent of which employ fewer than 500 workers. Known as small and mid-sized enterprises (SMEs), these companies are the primary focus of CSI.

As a formal plan prepared by the Department of Housing and Economic Development (HED) and adopted by the Chicago Plan Commission, CSI serves several purposes. It identifies immediate strategies and actions that will positively impact SMEs. It also coordinates government agencies around shared goals; provides a framework for infrastructure investment; offers a balanced assessment of manufacturing's role in the local economy; reaffirms the City's commitment to production-oriented businesses; and broadens the foundation upon which public- and private-sector initiatives can succeed.

CSI's policies and strategies are based on several previous and current efforts to promote, protect, and attract production-oriented businesses. In addition, HED convened a CSI Steering Committee and task

forces on business resources, infrastructure, land use and sustainable industry standards throughout 2011 and 2012 to discuss issues, collect and analyze data and refine recommendations. The "CSI: A Manufacturing Work Plan for the 21st Century" served as a reference tool for the CSI steering committee and task forces. Published in 2011 by HED, the Work Plan provided a critical snapshot of the city's physical assets, manufacturing sub-sectors, infrastructure, land use characteristics, and over-arching industrial strengths and weaknesses. Through a grant from the U.S. Department of Commerce Economic Development Administration (EDA), more detailed analyses was conducted on:

- Tax differentials between Chicago's manufacturing properties and those at other locations
- Models of trade association and sector-based partnerships that promote internationally competitive workforce training
- Modern management frameworks for urban industrial parks and site development
- Issues involving the creation of a new development entity to prepare sites for manufacturing users
- Manufacturing jobs and associated wages and how this information is being marketed to students and parents (a list of these studies is included in the appendices).



Another important resource for the development of the CSI Business Plan was World Business Chicago's Growth & Jobs plan, which identifies key characteristics that drive the city's and region's growth and provides a framework for analysis, goals, and economic development strategies based upon Chicago's unique assets. In identifying the \$53.9 billion regional manufacturing sector as a key driver for economic prosperity, the Growth & Jobs Plan noted that, to advance manufacturing, Chicago must focus on innovation for products and processes, along with an appropriately trained workforce. Research indicated that Chicago-based SMEs would flourish with more skilled workers, more research and development support, and a better perception of manufacturing among students, prospective employees, and parents.

Additional studies issued in February 2013 by the Center for Urban Economic Development at The University of Illinois at Chicago and the Chicago Metropolitan Agency for Planning (CMAP) documented key regional policies that would serve local and regional SMEs. Combined and refined with other information and research, the studies collectively provide a realistic foundation

for the CSI Business Plan's core strategies. The core CSI strategies leverage the cooperation of government agencies, educational institutions, and manufacturing assistance organizations on behalf of SMEs. The strategies seek to:

- ❶ **Maximize Chicago's location** by continuing to protect and modernize areas that are specifically built for manufacturing and related uses.
- ❷ **Leverage local logistics** by upgrading Chicago's truck, port, and river infrastructure to the level of service provided by the city's rail and air infrastructure while incorporating the role of warehouse and distribution facilities.
- ❸ **Maximize utility infrastructure** by addressing electric and broadband service issues within local Industrial Corridors while developing programs for enhanced power capacity and solar opportunities.
- ❹ **Create a manufacturing collaborative** by engaging local government, manufacturers, manufacturing assistance and workforce organizations and educators.

CSI policies and action items are arranged according to these four over-arching strategies.

CHICAGO'S LEADING MANUFACTURING SUBSECTORS

	Subsector	2010 Gross Regional Product (\$ millions)	% of Output
National Rank 1	Machinery Manufacturing	\$7,608	12%
	Food Manufacturing	\$7,174	12%
	Fabricated Metal Products	\$6,873	11%
	Primary Metal Manufacturing	\$3,423	6%
	Plastics & Rubber Products Manufacturing	\$3,335	5%
	Electrical Equipment, Appliances & Components	\$2,780	4%
	Paper Manufacturing	\$1,871	3%
2	Printing and Related Support Activities	\$1,758	3%
	Nonmetallic Mineral Product Manufacturing	\$902	1%
3	Miscellaneous Manufacturing	\$3,909	6%

Chicago MSA Manufacturing Output Source: World Business Chicago



CHICAGO: STILL A MANUFACTURING POWERHOUSE

The United States accounts for roughly 19% of global manufacturing output. Within the nation, the Chicago region is number two behind the Los Angeles area in total manufacturing gross product.

PRODUCTION IN METROPOLITAN CHICAGO

- ▶ The Chicago metropolitan area is one of the nation's major manufacturing centers, and manufacturing has become a more important specialization of the area over the last decade despite large manufacturing job losses.

In 2011, the Chicago metropolitan area had about 411,000 manufacturing jobs, second only to metropolitan Los Angeles. Manufacturing's percentage of all metropolitan Chicago jobs rose from 1.08 times the national percentage in 2001 to 1.11 times that percentage in 2011.

- ▶ The Chicago area specializes strongly in 11 manufacturing sub-sectors, with moderately high technology industries more important in the region than very high technology industries.

In 2011, moderately high technology industries in the Chicago area accounted for 1.21 times their percentage of all jobs nationwide, while very high technology industries in the metropolitan area made up less than the national average percentage of all jobs.

- ▶ Almost half of all manufacturing jobs in the Chicago metropolitan area are in Cook County.

About 47 percent of the metropolitan area's manufacturing jobs are located in Cook County: 16 percent in the city of Chicago and 31 percent in suburban Cook.

- ▶ In metropolitan Chicago, manufacturing offers higher wages than other industries.

In 2011, the average annual earnings in metropolitan Chicago manufacturing jobs were \$67,168, about 16 percent above average annual earnings for all jobs in the metropolitan area.

- ▶ During the last two years, metropolitan Chicago gained manufacturing jobs more rapidly than the nation as a whole.

From the first quarter of 2010, when manufacturing employment hit a low point in both the metropolitan area and the nation as a whole, through the third quarter of 2012, the number of manufacturing jobs increased by 5 percent in the Chicago area and 4 percent in the entire United States.

- ▶ Current enthusiasm for local and regional policies to strengthen manufacturing in metropolitan Chicago is well founded.

Policy efforts should focus on industries in which the area already specializes, on new industries that can be developed from them, on other industries that share a skill or technology base with them, and on promoting high-wage, high-skill production regardless of industry.

Locating Chicago Manufacturing: The Geography of Production in Metropolitan Chicago
 Howard Wial, February 2013
 Published in 2013 by the Center for Urban Economic Development at the University of Illinois at Chicago





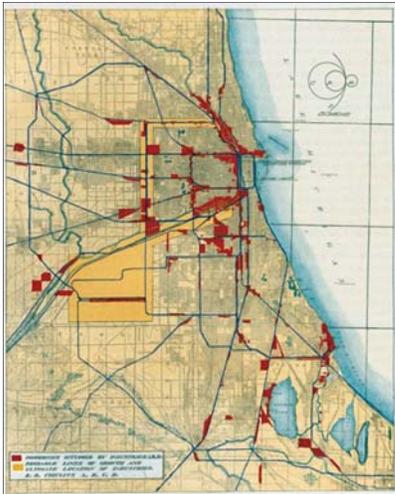
STRATEGY ONE

MAXIMIZE CHICAGO'S LOCATION

Since the 1940s, Chicago has implemented plans and policies to concentrate industrial activity in specific areas that are uniquely suited to manufacturing activities. Typically located along waterways and rail corridors, the areas evolved as highly effective manufacturing environments in which local companies could operate without land use pressures from non-compatible uses, especially residential and certain commercial activities. These areas were formalized as designated Industrial Corridors by the Chicago Plan Commission starting in 1992. Since then, proposed zoning changes for properties within corridor boundaries to a use other than manufacturing require Plan Commission review. Today, Chicago's 26 designated Industrial Corridors comprise 66 percent of all the land that is zoned for manufacturing use in the city.

INDUSTRIAL PLANNING THROUGH THE YEARS

1909



The 1909 Plan of Chicago highlighted existing industrial areas in red and areas projected for industrial growth in orange.

1946



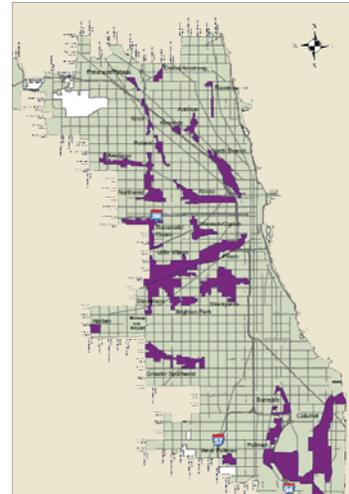
The 1946 plan estimated that 14.5% of city land was used for industrial and railroad uses. The plan projected that 19.6% would provide adequate space to accommodate expansions and new industry.

1966



The 1966 comprehensive plan envisioned seven square miles of industrial land to be added to the 11 square miles that already existed citywide.

2013



Today, Chicago's 26 designated Industrial Corridors collectively represent 16% of all land within city limits.



PREPARING INDUSTRIAL CORRIDORS FOR THE NEXT GENERATION OF MANUFACTURING

The Industrial Corridor designation has become the primary organizing principle for most of the City of Chicago's manufacturing planning and implementation initiatives. Recent studies by HED reveal that 34 percent of all land zoned for manufacturing is not within an Industrial Corridor. Of that 34 percent there are several large concentrations of industrial activity contiguous to existing Industrial Corridors along shared rail lines that deserves the corridor designation.

Policy

Maintain the integrity and increase the effectiveness of concentrated manufacturing areas.

Action 1

- Selectively revise corridor boundaries to include adjacent land that is zoned for manufacturing and ensure that all intermodal facilities are within Industrial Corridors.

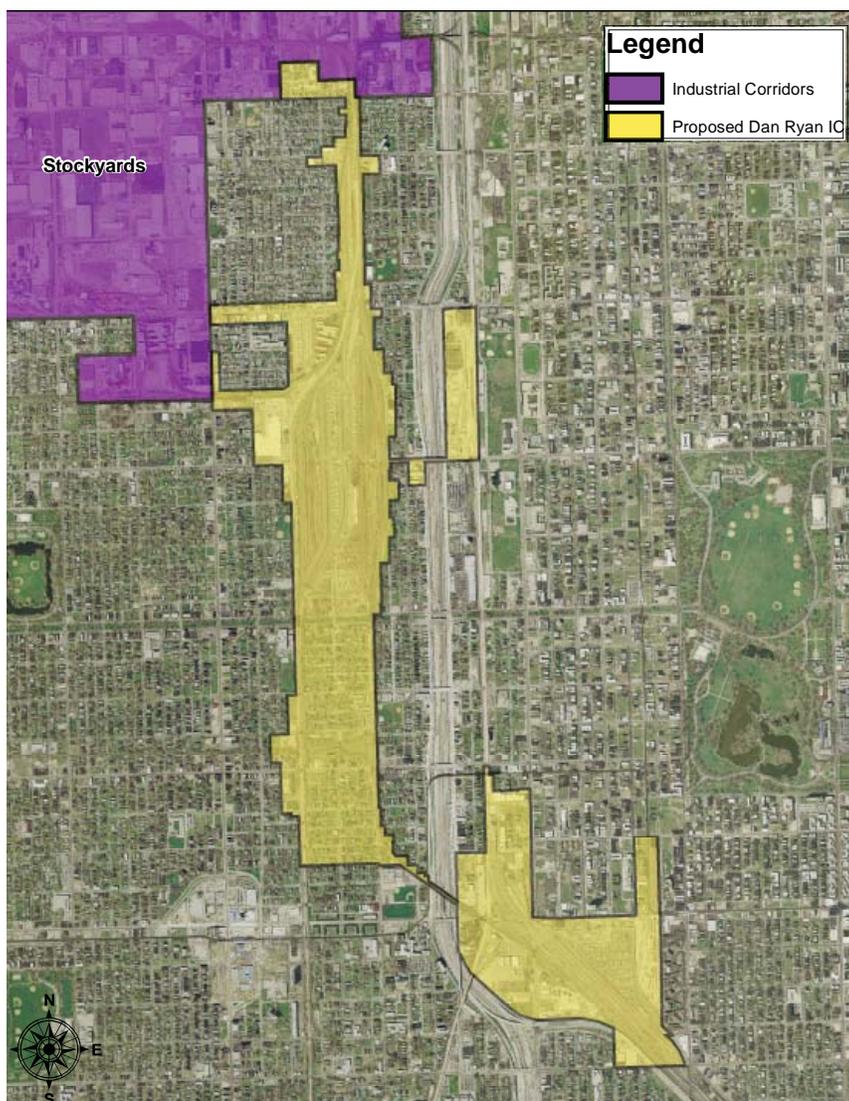
Action 2

- Designate the Dan Ryan Industrial Corridor in the Englewood community to incorporate the expanding Norfolk Southern railroad facilities.

Action 3

- Maintain and refine existing non-residential zoning adjacent to the North Branch Industrial Corridor east of Goose Island, and the eastern end of the Kinzie Industrial Corridor.

PROPOSED DAN RYAN INDUSTRIAL CORRIDOR

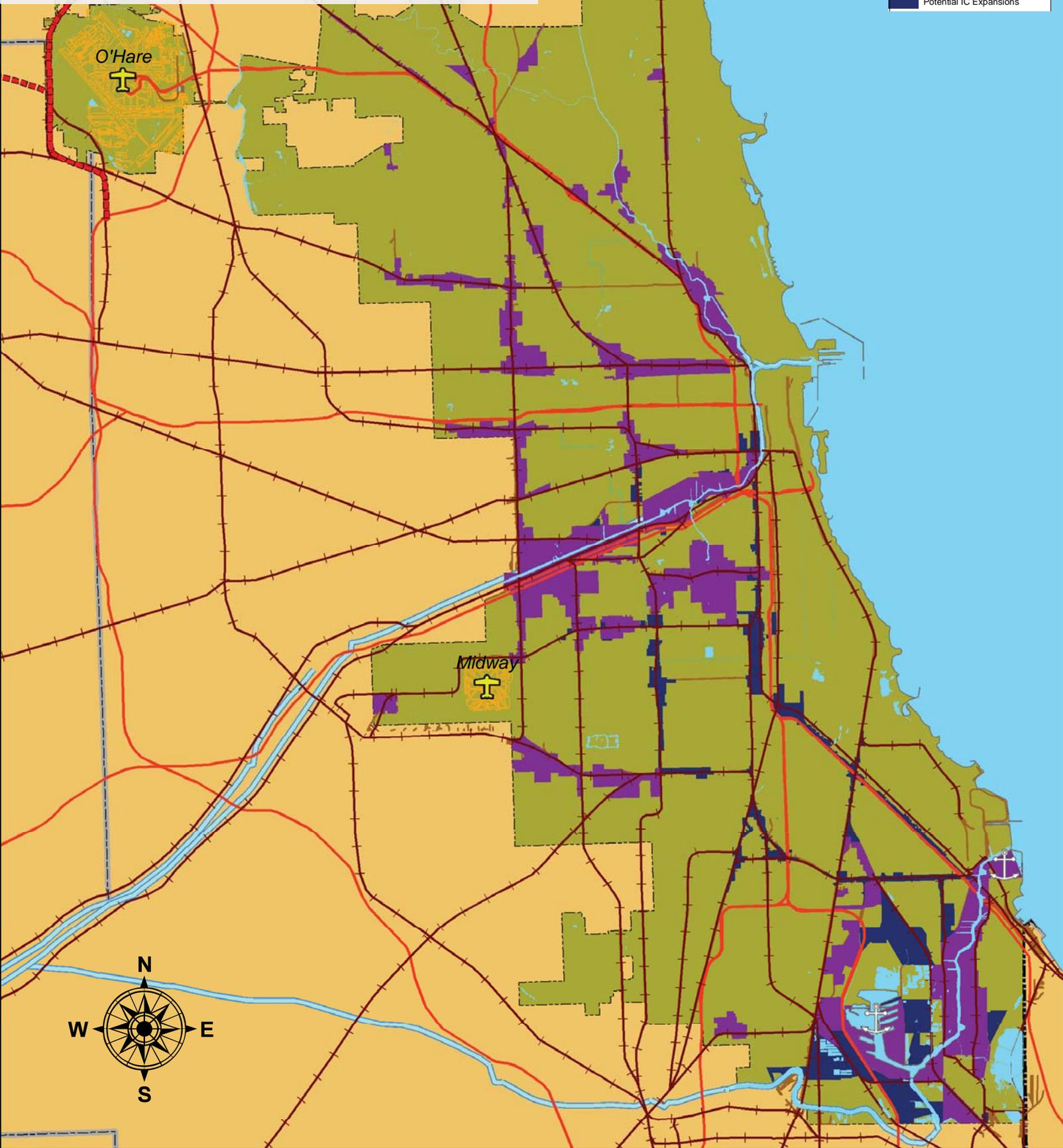


- In conjunction with Norfolk and Southern railroad's ongoing expansion of its 47th Street intermodal facility, the City of Chicago is proposing that the rail yard and other strategic portions of the Englewood community be formally designated as a new City Industrial Corridor.

PROPOSED BOUNDARY AND ZONING CHANGES FOR INDUSTRIAL CORRIDORS

Legend

- Industrial Corridors
- Potential IC Expansions



The boundaries of Chicago's 26 industrial corridors generally align with railroad embankments, waterways, highways, arterial streets and other manmade and natural buffers that effectively separate interior industrial uses from adjacent residential and commercial activity. HED recently analyzed the boundaries to further define and differentiate industrial corridors from surrounding land uses. These boundary changes are illustrated on this map. In addition, the Calumet Industrial Corridor contains large parcels of recreational and natural areas that should be zoned as public open space (POS). Those areas are highlighted in green on this map and the map on page 11.

REFINING THE CALUMET CORRIDOR



On the Far South Side near Lake Calumet, which has historically served as home to the city's largest and most intensive manufacturing uses, two local government agencies own large parcels of land that could be developed for industrial purposes. The Illinois International Port District (IIPD) owns significant tracts of land that offer convenient access to the Mississippi River and Great Lakes shipping systems. The IIPD is currently evaluating its future direction, along with the leases it offers to private companies that operate on its land. As part of that process, the IIPD is considering a private investor/operator to provide capital, redesign facilities, market property, and reestablish relationships with key stakeholders in the region's freight transportation system. The Metropolitan Water Reclamation District of Greater Chicago (MWRD) also owns large tracts of land in the Lake Calumet area, most of which is used to dry bio solids in an open air environment. A future scenario for these MWRD lands could be manufacturing facilities developed with infrastructure adapted to receive and use treated effluent as an input, in lieu of potable water.

Policy

Expand the manufacturing potential of Chicago's largest industrial corridor.

Action 4

- Amend the Industrial Corridor boundaries and zoning of the Lake Calumet area to reflect existing uses.

Action 5

- Develop an integrated vision, land use and infrastructure plan for the IIPD and MWRD Lake Calumet properties for manufacturing.

REINFORCING MANUFACTURING ZONING



Starting in the late 1980s, Chicago created the Planned Manufacturing District (PMD) designation within the zoning ordinance to provide a consistent and predictable land use policy in concentrated areas of heavy industrial activity. Today, 15 PMDS are located within 12 Industrial Corridors. As the designations occurred, U.S. manufacturing was simultaneously becoming more productive, requiring fewer employees to do larger amounts of work, typically through the utilization of increasingly efficient machinery. Today, the standard PMD designation may be too narrow to directly address modern manufacturing uses, as contemporary processes, along with new types of businesses, may be more compatible with production oriented uses than in the past.

Policy

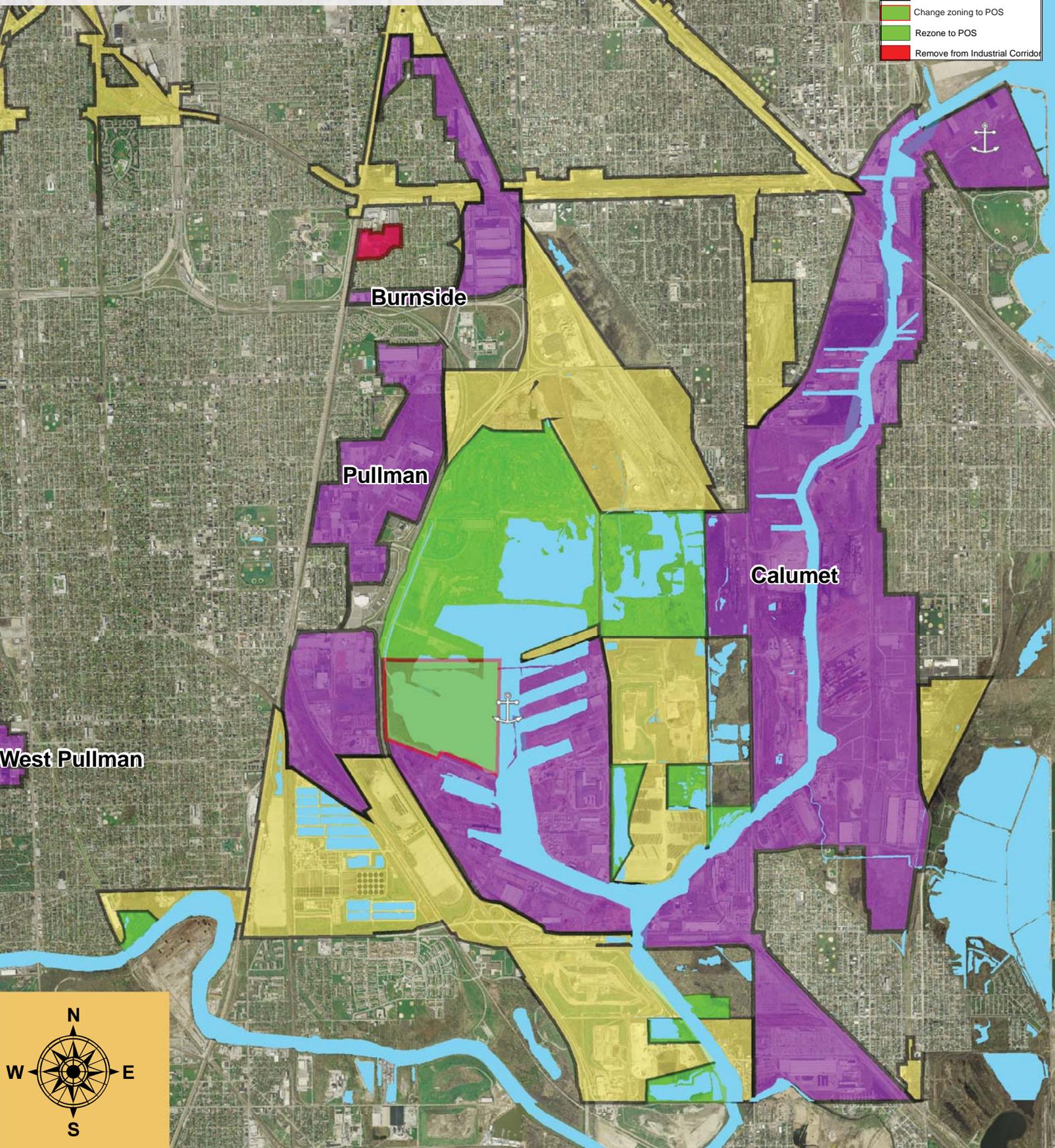
Maintain a strong zoning classification for manufacturing while ensuring that the range of compatible uses is clear, evolves with technology, and takes full advantage of local transportation infrastructure.

Action 6

- Amend the Chicago Zoning Code to provide a 21st Century definition of manufacturing; clarify existing manufacturing uses; address changes in manufacturing and compatible uses within PMDs; and provide boundary amendments for PMDs.

PROPOSED BOUNDARY AND ZONING CHANGES FOR THE CALUMET INDUSTRIAL CORRIDOR

Legend	
	Potential IC Expansions
	Industrial Corridors
	Change zoning to POS
	Rezone to POS
	Remove from Industrial Corridor



The IIPD recently completed a strategic and capital needs study in which the northern portion of Lake Calumet was described as being “the least likely area for land creation and industrial use. This has potential for non-industrial use; however, a barrier separating industrial and non-industrial areas would be a requirement for safety and security.” The IIPD also owns the Harborside International Golf Center immediately north of Lake Calumet. These areas are highlighted in green on the map as areas to be zoned for Public Open Space (POS). In addition, there are wide rail corridors, rail yards and adjacent industrial land that should be included in the Industrial Corridors.

MANAGING

MANUFACTURING REAL ESTATE

The amount of vacant land and buildings available for new manufacturing facilities varies throughout Chicago. Businesses and developers looking for manufacturing facilities within the City are often unable, unwilling or simply do not have the time to undertake the expensive and time-consuming process of rehabilitating older buildings, assembling sites, demolishing structures, undertaking environmental remediation and constructing a new facility. Some or all of these steps are necessary to prepare older, privately-owned manufacturing buildings and brownfield sites for new manufacturing purposes.

While Chicago does not have an entity dedicated to assembling, preparing and/or managing large industrial real estate like many cities have used since the 1960s, several Chicago-based not-for-profits actively market or manage specific sites for manufacturing uses. North Branch Works, for example, serves manufacturers along the North Branch of the Chicago River by collecting and distributing information on properties available for acquisition and reuse. The Industrial Council of Nearwest Chicago (ICNC), meanwhile, manages and provides services for the Fulton-Carroll Business Center (FCC), which was acquired and developed in the 1980s with assistance from the U.S. Department of Commerce. The FCC is a 410,000-square-foot industrial facility where more than 120 small businesses benefit from affordable rents and flexible leases, a business development resource

center, and on-site counselors, maintenance staff and property manager. Since 1980, more than 1,000 businesses have set up shop at the FCC. In 2012, Manufacturing Renaissance (formerly the Center for Labor and Community Research) and the Chicago Manufacturing Renaissance Council led a coalition of business and community groups to develop a shared vision for an ecosystem of advanced manufacturers, suppliers, related industries, and educational institutions by linking the assets of Chicago's Armitage, Northwest, Pulaski, Kinzie, Western/Ogden, and Roosevelt/Cicero Industrial Corridors. The goal of the coalition is to recruit an anchor company to locate operations in the area.

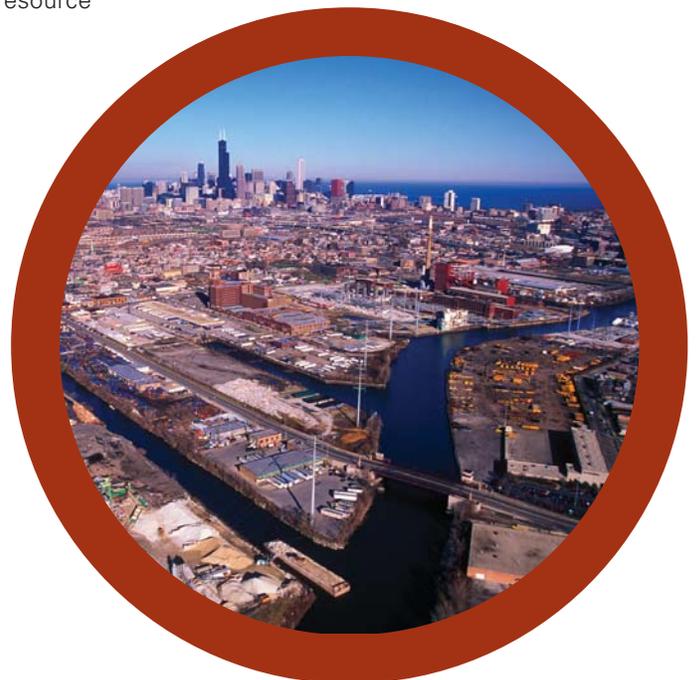
Another potential option for creating new manufacturing facilities in Chicago would be to provide public assistance to the developers of spec industrial space. The problem with this option has been the risk of default.

Policy

Support entities with the mission of acquiring, developing and/or managing real estate within Industrial Corridors for manufacturing.

Action 7

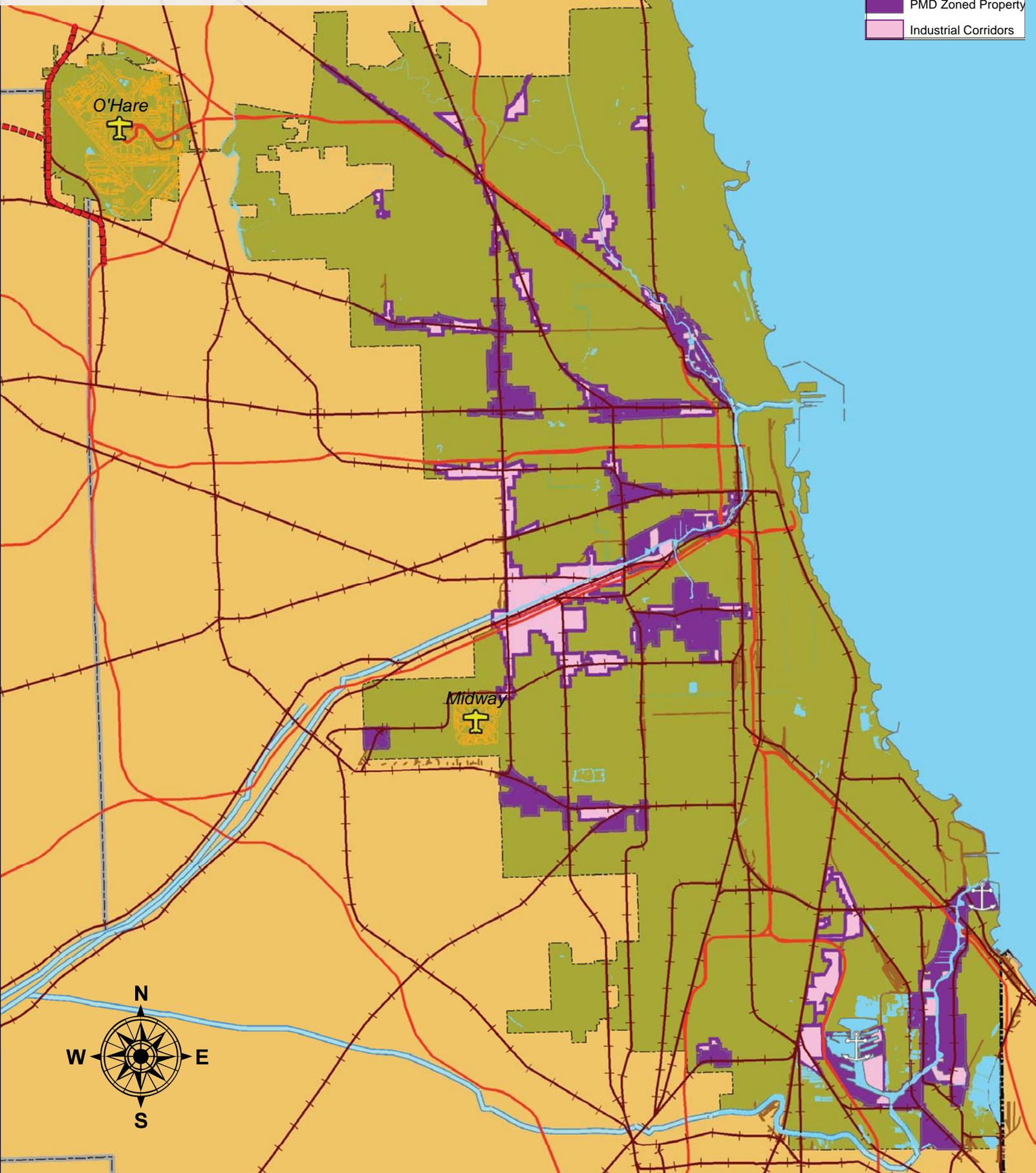
- Work with local manufacturing organizations and industrial developers to explore opportunities for new manufacturing facilities within Industrial Corridors.



CHICAGO'S PLANNED MANUFACTURING DISTRICTS

Legend

- PMD Zoned Property
- Industrial Corridors

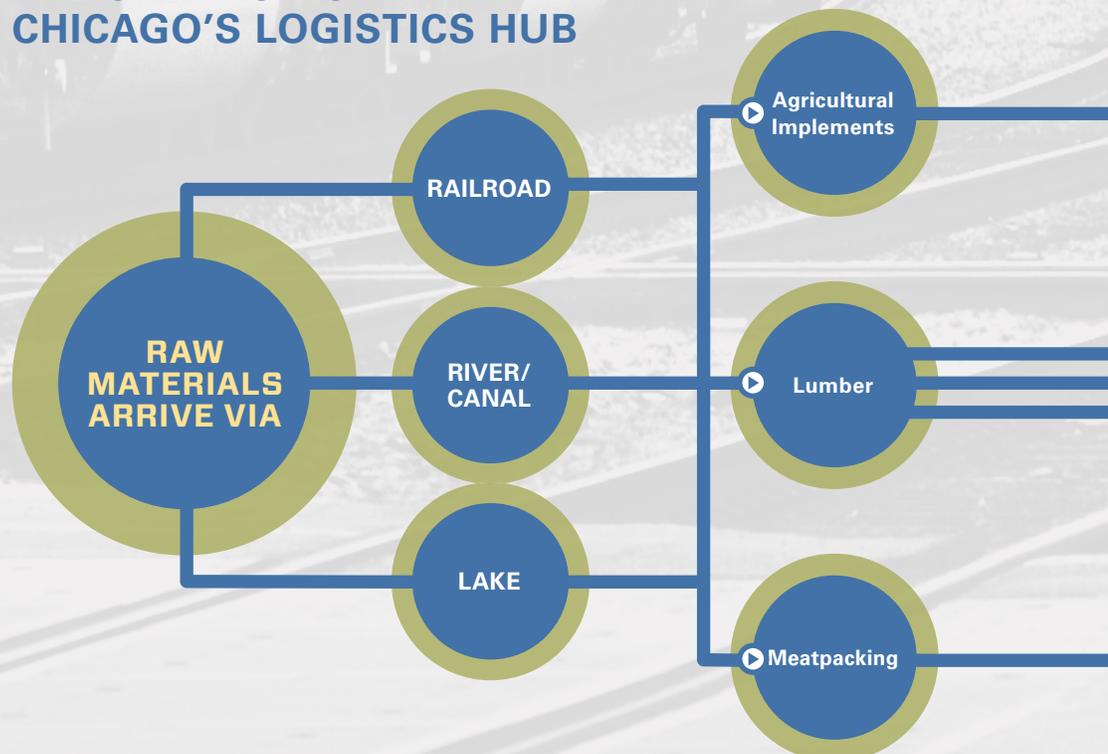


◉ Zoning change proposals for land within Industrial Corridors must be reviewed by the Chicago Plan Commission, which can reject proposals that would cause conflict with existing businesses or weaken a corridor's industrial integrity. Additional land use protection is provided by planned manufacturing district (PMD) legislation, which prohibits residential and large-scale retail development. Fifteen PMD's have been designated in 12 of the corridors.



THE CREATION OF CHICAGO'S LOGISTICS HUB

- Chicago prospered as a manufacturing center because individuals, organizations and government took advantage of a central location within a rapidly developing nation. Raw materials such as cattle and lumber came into the city and were transformed into various products, which spurred the manufacture of other products, much of which was exported across the country and the world. Over time, logistics and freight firms provided additional benefits for regional manufacturing. In August 2013, the Chicago Metropolitan Agency for Planning released "The Freight-Manufacturing Nexus: Metropolitan Chicago's Built-In Advantage," which documents how interdependent freight and manufacturing assets ensure that Chicago is well positioned to compete in the nation's recent manufacturing resurgence.

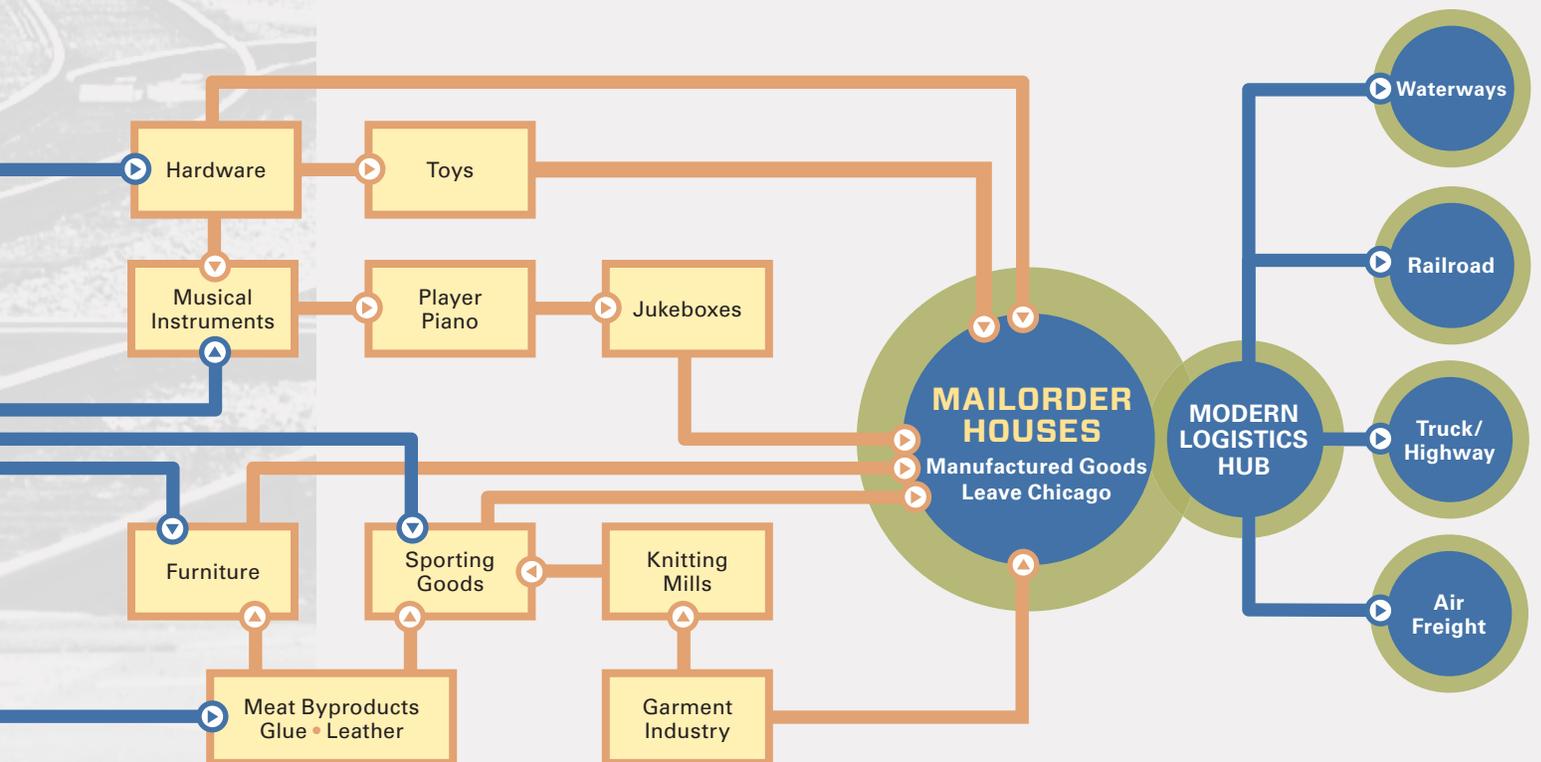




STRATEGY TWO

LEVERAGE LOCAL LOGISTICS

The planning and development of Chicago's industrial infrastructure has long served to maximize the city's location as a central nexus of rail, waterway, road, and air travel in the United States. In 1848 the first railroad reached Chicago and over the next 60 years the national rail network expanded with the City as the hub. By the early 1900s, leaders acknowledged that Chicago had "been made largely by the railroads, and its future prosperity" depended upon them. Additional assets were created by the 1960s, including the local expressway system, a major freight terminal in Calumet Harbor, O'Hare and Midway airport improvements, and additional rail and truck terminals. In light of projected increases in truck and rail traffic in coming decades, these public infrastructure assets must be strategically maintained, selectively expanded and protected from incompatible uses as part of a coordinated effort to ensure the efficient transport of products, equipment, workers, and information.



PERFECTING

RAIL, AIR CARGO AND PORT INFRASTRUCTURE

From 2011 to 2040, Chicago's rail volume is projected to triple by value - from \$235,372 million to \$703,607 million - and double by weight - from 127,194 tons to 256,740 tons. The increased freight movements will reinforce the region's role as a manufacturing center while potentially exacerbating congestion issues. The Chicago Region Environmental and Transportation Efficiency program (CREATE) and the Chicago Department of Transportation's 2011 Chicago Railroad Economic Opportunity Plan (CREOP) provide viable frameworks to improve system efficiency, reduce congestion, and capitalize on carload rail service in Industrial Corridors. Select opportunities exist through CSI to further reinforce and protect the association between rail and intermodal facilities, such as by amending Industrial Corridors to include existing rail yards and facilities and through the creation of a new Industrial Corridor along the Dan Ryan Expressway (I-90/94).

As a top 10 U.S. city for air cargo shipments, Chicago is served by 30 cargo airlines, including more than a dozen dedicated carriers to Asia. The ongoing O'Hare Modernization Plan, though largely focused on commercial flight operations, will provide benefits for air cargo operations through runway reconfigurations and a newly announced cargo center that will accommodate the next generation of larger freight planes. (Midway International Airport serves predominantly passenger-oriented travel needs.)

As noted earlier, the Illinois International Port District (IIPD) is one of the largest landowners in the Calumet Corridor. In addition, the IIPD manages the country's largest inland general cargo port located along the Calumet River. The IIPD initiated a strategic and capital needs study in 2012. Its authors stated that a new direction was needed that is focused on industrial, maritime and freight movement issues and opportunities; provides for active management of IIPD property, including the development and execution of a capital plan for existing and potentially redesigned sites; aggressively promotes and markets the Port as an ideal location for industrial/maritime business; and rigorously seeks operational efficiency and financial accountability.

In response to the study, in July 2013, Mayor

Emanuel and Governor Quinn announced a new "Port Authority Management Plan" to revitalize this long underutilized infrastructure asset. The plan forecasts to increase employment by as much as 2,000 jobs.

Policy

Maintain the integrity and increase the effectiveness of Chicago's rail, air and port infrastructure.

Action 8

Continue to be an active CREATE partner to improve speed and efficiency of the regional rail network and to maintain and manage facilities that cater to air cargo operations around O'Hare International Airport.

Action 9

Work with the Chicago Metropolitan Agency for Planning's Freight Committee to continue to develop and refine a rail-oriented industrial development strategy that identifies areas for preservation and/or investment in rail sidings and spurs.

Action 10

Continue to maintain and manage facilities and resources that cater to the ongoing expansion of air cargo operations around O'Hare International Airport.

Action 11

Include all existing and planned rail yards within Industrial Corridors.

Action 12

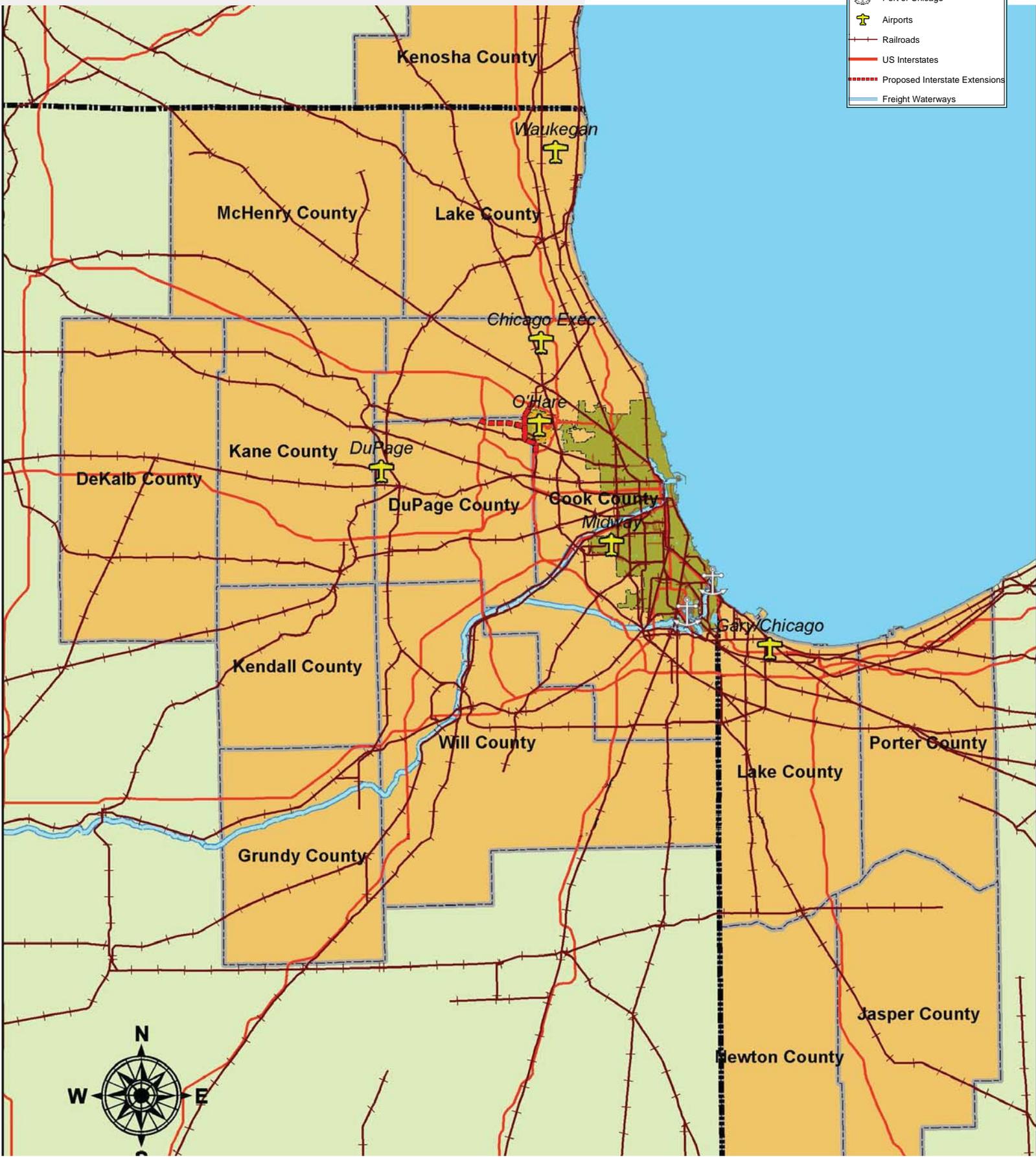
Revitalize the Illinois International Port District by investing in infrastructure and ensuring more efficient management and operations of port facilities.



Rail Freight Volume Source: US Department of Transportation 2008

CHICAGO'S INDUSTRIAL TRANSPORTATION INFRASTRUCTURE

Legend	
	Port of Chicago
	Airports
	Railroads
	US Interstates
	Proposed Interstate Extensions
	Freight Waterways



 The Chicago Metropolitan Agency for Planning's 2013 report, "The Freight-Manufacturing Nexus: Metropolitan Chicago's Built-in Advantage," states that the Chicago area has more major interstates and railroads than anywhere else in the nation, as well as developed air and water facilities. Together with the nation's second largest concentration of freight workers, this unparalleled freight access provides manufacturers here mode choice to meet specific supply chain needs; offers more direct routes and headways; increases access to suppliers and markets; improves logistics and reliability; and lower costs through concentrated demand, inventory control, and competition.

TRACKING TRUCKS



As the point of convergence of five interstate highways and their bypasses, Chicago possesses both advantages and challenges for regional and local truck operations. While the number of route options that provide access for distribution is exceptional, the routes' ability to physically connect trucks to destinations throughout the area is not. There is also no virtual or online tracking resource to monitor movements along individual streets and highways. This is complicated by the fact that the area is consistently ranked as one of the worst in the nation for roadway congestion, partly due to a dated network of railroad viaducts with low clearances, which further limit truck mobility. Lack of a truck network designation hinders industry's ability to effectively route trips and comply with government regulations. A designated truck network would mitigate these weaknesses while enhancing economic development opportunities.

Policy

Maintain a physical and virtual truck route tracking system citywide.

Action 13

- Enhance and better define the citywide truck routes and establish a capital investment plan and development guidelines to distinguish local truck routes from other streets.

Action 14

- Establish an interactive local truck route "Google" map and travel advisory system to provide information on optimal routes for commercial drivers taking into account viaduct clearances and real time traffic conditions.

DAYLIGHT WATERWAY INFRASTRUCTURE



The City's waterways are widely regarded as an efficient mode of transport for heavy bulk and general cargo. In 2011, the Great Lakes and Mississippi River Interbasin Study Team, led by the U.S. Army Corps of Engineers, issued a baseline report on cargo traffic on the Chicago Area Waterway System (CAWS). The CAWS includes all commercially-navigable channels between far-west suburban Lockport and Lake Michigan. The Chicago waterways include the Chicago Sanitary and Ship Canal; the North, South and Main branches of the Chicago River; Cal-Sag Channel; Calumet River; Little Calumet River, Lake Calumet and Lake Michigan. Shipment and economic data indicate that nearly two thirds of shipments and a little more than three quarters of receipts terminate at locations within Chicago, reflecting Chicago's role as a barge hub. The City's waterway facilities have specific challenges that must be addressed to maintain and foster their increased use for manufacturing-based transportation, specifically involving infrastructure and certain zoning requirements for riverside locations.

Policy

Increase the effectiveness of Chicago's barge-related waterway infrastructure.

Action 15

- Clarify the Waterways Planned Development ordinance to allow for a streamlined review of expansions of existing manufacturing sites.

Action 16

- Create a seawall and dock infrastructure plan to protect nodes for industrial users requiring barge access.

Action 17

- Work with state and federal agencies to address and make transparent, site development regulatory issues and create a management plan for barge traffic.

INDUSTRIAL DOCKS ALONG THE CHICAGO RIVER

Legend

- Industrial Docks
- Freight Waterways
- ✈ Airports
- Railroads
- US Interstates



▶ A recent survey of active industrial boat docks along the Chicago River helps the U.S. Coast Guard and local planning agencies to evaluate waterway traffic, especially potential conflicts between industrial and recreational users.



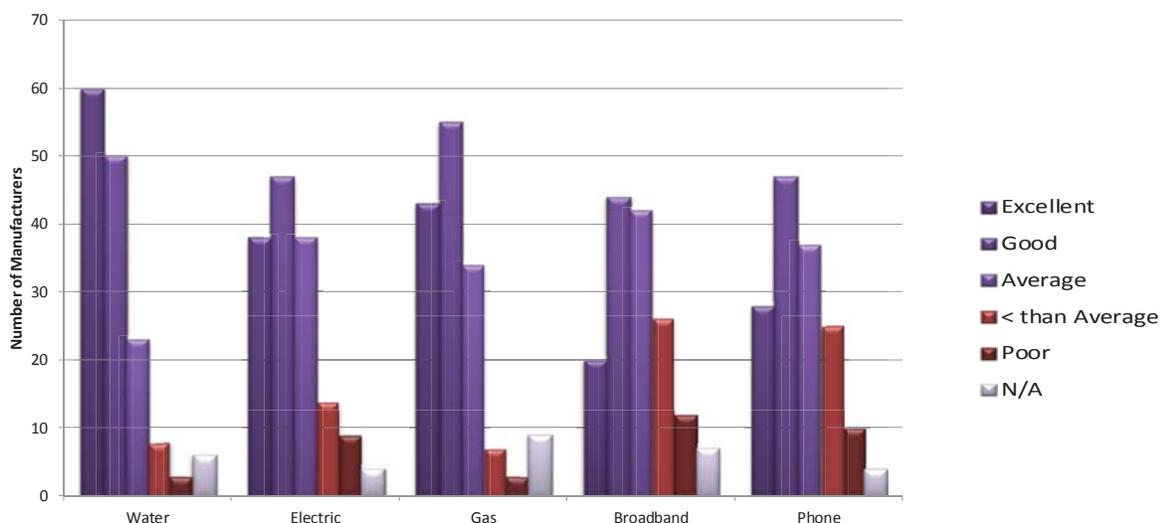


STRATEGY THREE

MAXIMIZE UTILITY INFRASTRUCTURE

During 2011, HED commissioned a manufacturing survey about a variety of issues related production in Chicago, obtaining responses from 183 manufacturers citywide. When asked to rate utilities service, broadband, phone and electric had the lowest ratings with gas rated generally good. Manufacturers were also asked about sustainable products and practices. Installation of efficient lighting was the most common practice adopted, followed by recycling, changing chemicals, installation of efficient equipment and heat conservation. The department simultaneously conducted listening tours among local industrial companies, which helped to identify specific locations that had experienced power outages and broadband problems.

WHEN THINKING ABOUT YOUR BUSINESS OPERATIONS, HOW WOULD YOU RATE UTILITIES IN CHICAGO?



PROVIDING RELIABLE ELECTRICITY

The productivity of Chicago manufacturers, like other utility users, is highly dependent on reliable service. Interruptions in service, such as power quality outages or micro-outages of only a fraction of a second, can shutdown machinery and result in costly losses of time and output. In October 2011, the Illinois General Assembly enacted the Energy Infrastructure Modernization Act (EIMA) to help the area's power utility, ComEd, make \$1.3 billion in smart grid improvements on its infrastructure and \$1.3 billion in smart meter upgrades over the next 10 years.

The bill should benefit manufacturers and other electric customers, but other systemic problems involving data outages, distribution, and power quality must be addressed to further reinforce the viability of local industrial areas.

A ComEd Compliance Working Group was formed to assess reliability performance of ComEd service to the 1.3 million customers in Chicago. The City is represented by staff from the Department of Fleet and Facility Management's Bureau of Asset Management. The group holds regular meetings to measure service performance of 132 electrical substations, 1,800-plus feeders, and related critical facilities. The group is also preparing a business plan intended to oversee implementation of the EIMA plan for the City of Chicago.

City representatives intend to ensure that a proportionate share of the \$2.6 billion funding under the Act will be spent to improve and modernize the Chicago's electrical infrastructure. ComEd's franchise terminates on Dec. 31, 2020.

Policy

Ensure reliability and availability of electrical service in the Industrial Corridors.

Action 18

- Expand the existing City-ComEd working group to include HED staff to focus on power outage and power quality concerns within the Industrial Corridors.

Action 19

- Create a system to notify ComEd of nonresidential building permit applications by heavy users to reduce outages caused by overburdening system capacity.



ENSURING ENOUGH BROADBAND

Chicago has the third-largest fiber optic capacity of any metro area in the country and the region is home to three of the world’s largest data centers. Despite this leading position in capacity, some industrial areas of the City have limited high-speed communications infrastructure. Recognizing that reliable, high-speed broadband service is critical to modern manufacturing and that economic vitality in traditional industrial corridors will be enhanced with improved broadband access, the delivery of sufficient capacity is a priority. Given that most internet service providers’ infrastructure investments are based on customer demands in order to mitigate complex and costly construction projects, concerted collaboration between SMEs and broadband partners should be encouraged to bring high quality, reliable connectivity to Chicago manufacturers in anticipation of future demand.

Policy

Establish availability of broadband service with speeds commensurate with current and future needs of the SME users.

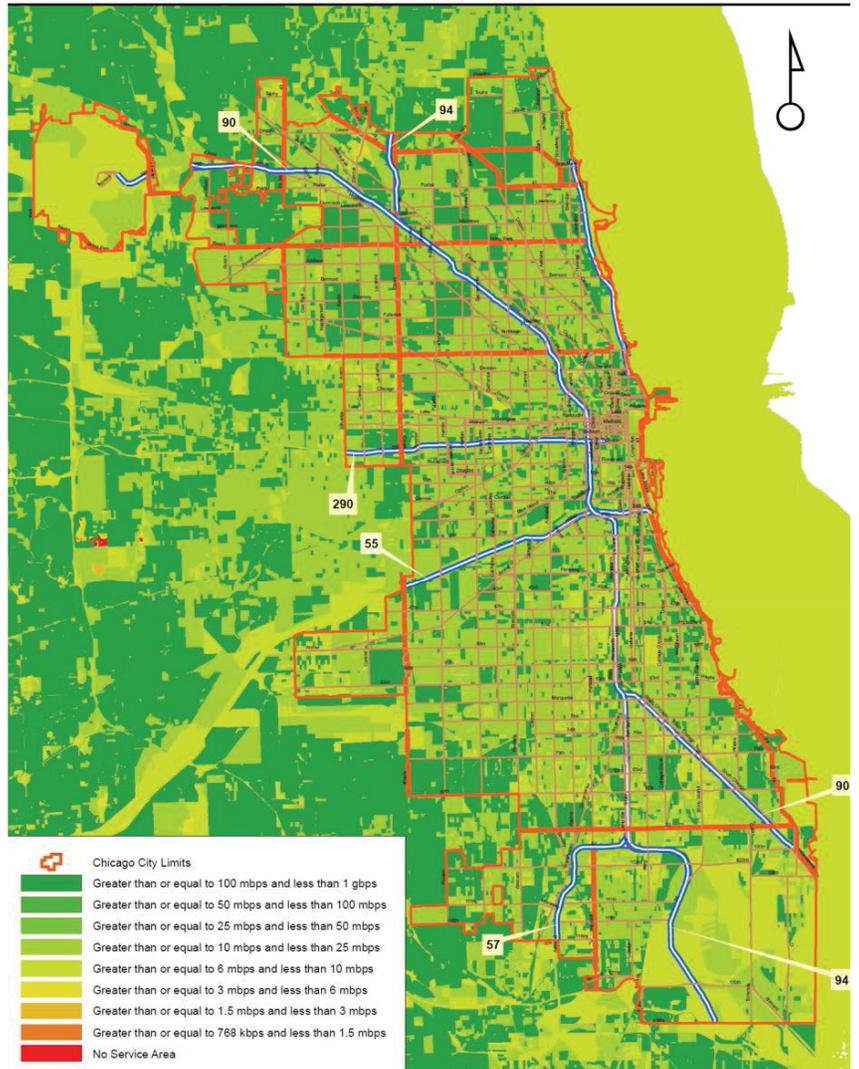
Action 20

- Immediately convene discussions between SMEs and primary broadband providers to identify strategies to enhance communications infrastructure and improve customer choice.

Action 21

- Explore options for the aggregation of manufacturers’ demand and opportunities for shared conduits or similar types of joint access.

COMBINED TECHNOLOGIES MAXIMUM ADVERTISED DOWNLOAD SPEEDS



TAKING ADVANTAGE OF SOLAR AND WATER

The concentrated geography of Chicago Industrial Corridors provides opportunities to harness solar power and manage storm water through private-public partnerships. According to a recent study commissioned by HED, nearly 1,300 acres of rooftops in Industrial Corridors could accommodate solar energy systems that lower operating costs and potentially provide backup energy systems for manufacturers. On the ground, corridor-wide storm water management initiatives could reduce costs for local manufacturers that are inconvenienced by localized flooding while simultaneously reducing water treatment costs for the City. Additional potential cost reductions could involve local use of grey water for manufacturing purposes, a technique already utilized in other U.S. markets.

Policy

Continue to increase the environmental sustainability of local Industrial Corridors as distinct landscapes comprised of individual businesses.

Action 22

- Coordinate with other government, utility, and non-profit entities to develop individual and group solar programs as part of a comprehensive approach that is tailored to SMEs.

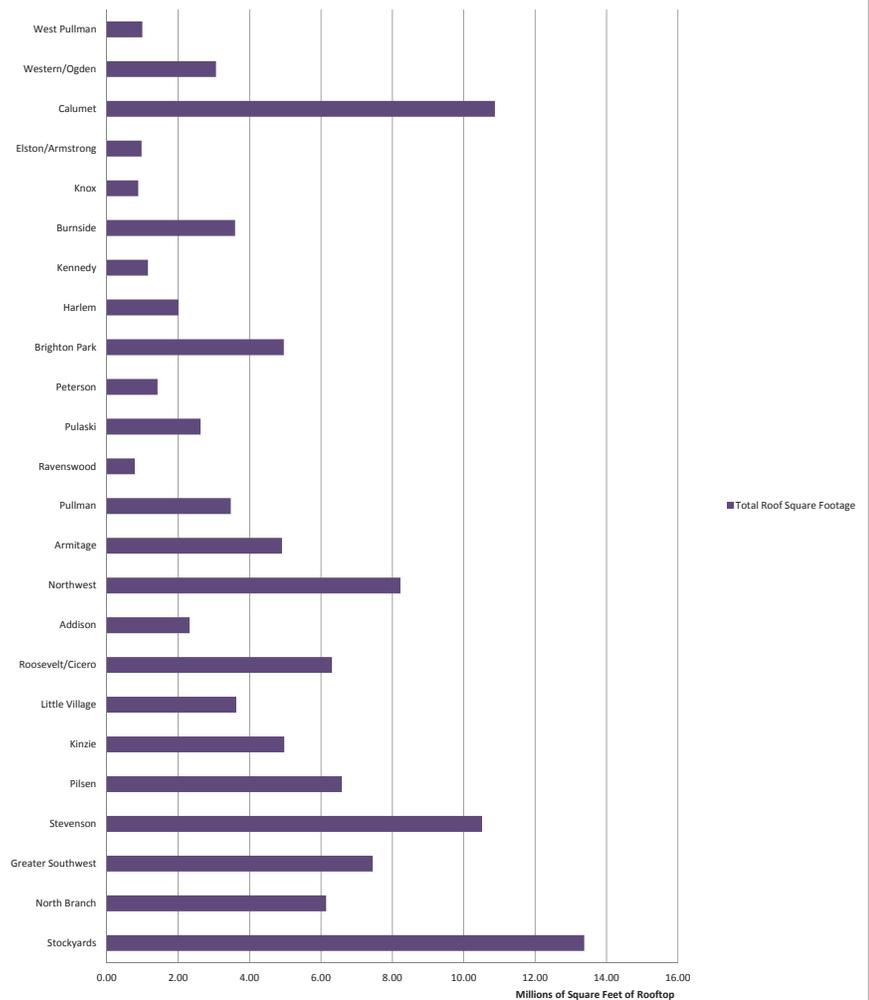
Action 23

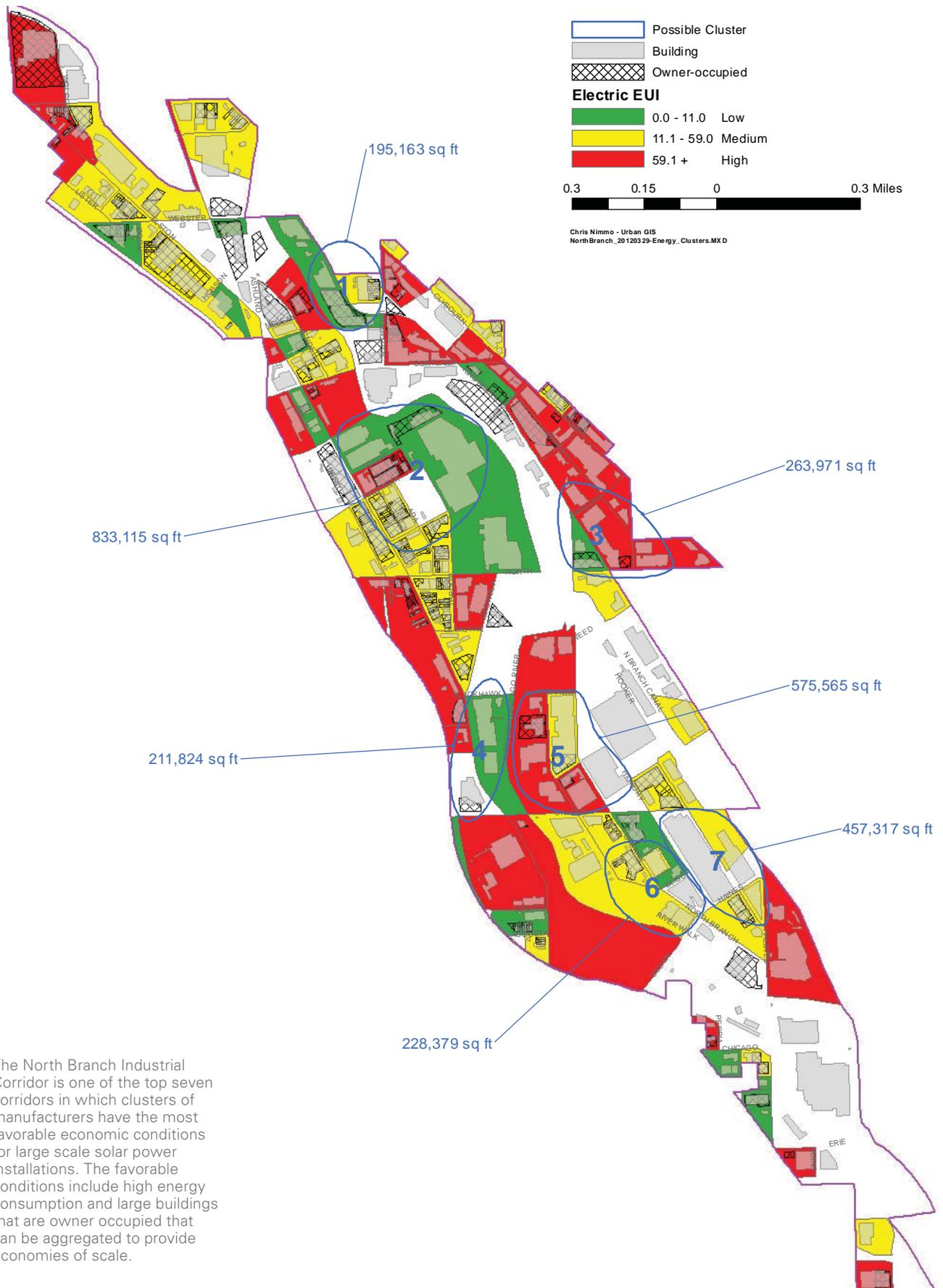
- Explore opportunities for using both public rights-of-way and adjacent private property for storm water landscapes when rebuilding infrastructure.



- A recent HED study determined that, if 10 percent of the rooftops within local Industrial Corridors were outfitted with solar panels, more than 100 megawatts of electricity could be created. The effort would also produce 1,700 construction-related jobs and save participating companies more than \$10 million in energy costs.

SOLAR POTENTIAL BY INDUSTRIAL CORRIDOR





- The North Branch Industrial Corridor is one of the top seven corridors in which clusters of manufacturers have the most favorable economic conditions for large scale solar power installations. The favorable conditions include high energy consumption and large buildings that are owner occupied that can be aggregated to provide economies of scale.



DIVERSITY SPURS AND CONNECTS NEW PRODUCTS

► In the United States, metropolitan areas contain the majority of manufacturing jobs. In 2012, researchers classified metropolitan areas into manufacturing groups. While some areas have a manufacturing focus such as information technology, chemicals, machinery or “planes, trains and automobiles,” Chicago is among those considered to have a diversified manufacturing base that produces a wide variety of raw and finished products.



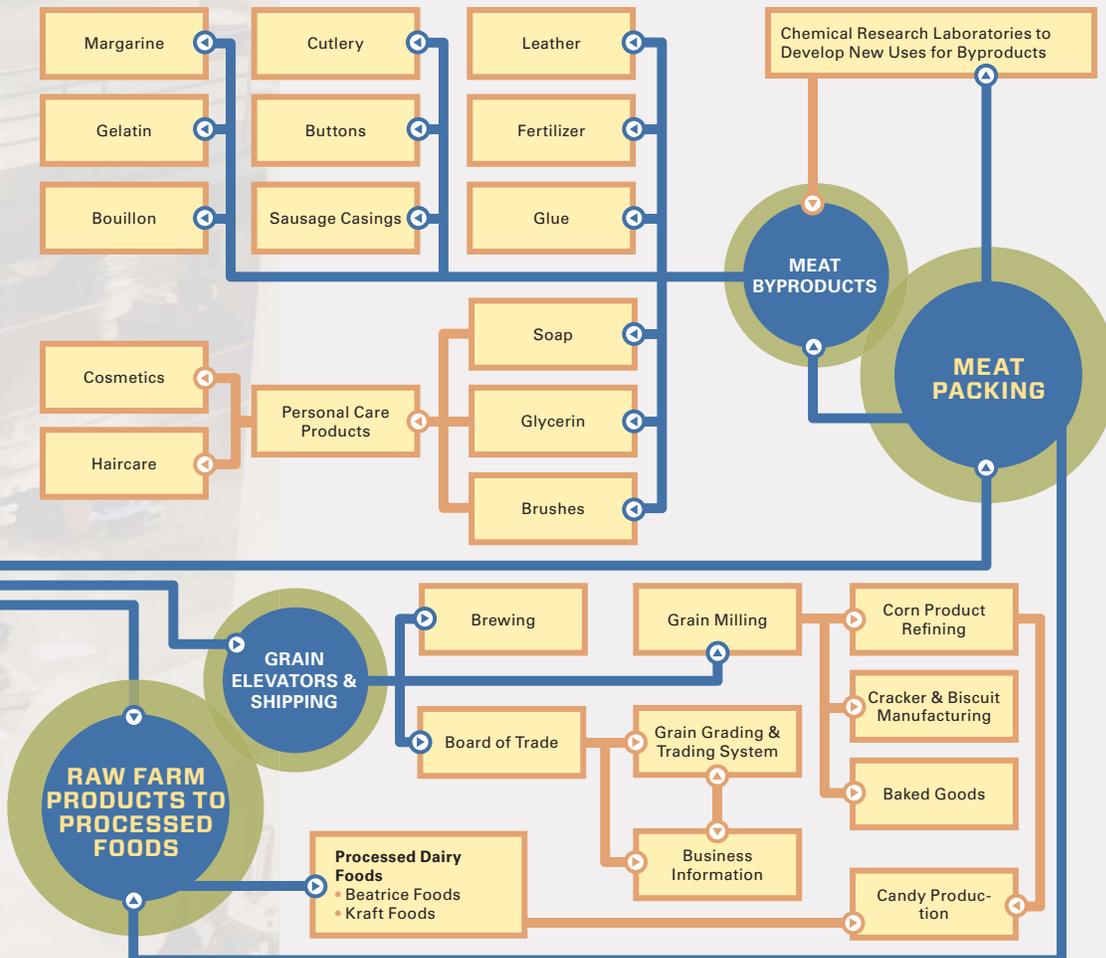


STRATEGY FOUR

CREATE A MANUFACTURING COLLABORATIVE

In the last two years several national and regional studies have been released on manufacturing and manufacturing policy in the United States. The February 2013 report issued by the Center for Urban Economic Development at The University of Illinois at Chicago provides a good synopsis of the policy and social issues:

“A final challenge for Chicago-area manufacturing policy efforts is that they are not, at present, coordinated with one another. This creates the danger that different policy efforts may work at cross purposes or that separate efforts may not be large enough to take full advantage of economies of scale. Although there is no need for all policy efforts to be conducted by a single public or private organization, manufacturing policy in Chicago would benefit from some looser form of coordination.”



FINDING THE WORKFORCE



While Chicago's current manufacturing base will require an estimated 5,200 new workers per year for the next 10 years, an estimated 1,200 skilled production jobs will go unfilled due to a lack of qualified employees. Key subsectors dealing with unfulfilled workforce issues include fabricated metals and food manufacturing, long recognized as mainstays of Chicago manufacturing, and support services, which help connect companies with workers. Recruiting the next generation of manufacturing workers is a key to filling this gap.

Manufacturing is one of the six focus areas for the City Colleges of Chicago's "College to Career" program that seeks to align courses with employer needs, thus creating a long-term pipeline of skilled graduates for Chicago's manufacturing industry. Richard J. Daley College, one of the City Colleges of Chicago, is on the "M-List" of the National Association of Manufacturers (NAM), which recognizes educational institutions that teach manufacturing students according to industry standards and accreditations.

Manufacturing is also a focus for the Chicago Cook Workforce Partnership (The Partnership), a joint venture of the City of Chicago and Cook County. The Partnership oversees federal, public, and private funding for comprehensive workforce development initiatives and implements policy changes to align occupational training services with current and projected business needs. The Partnership works with businesses, job-seekers, community colleges, workforce centers, and delegate agencies to maximize human capital for seven high growth/high demand sectors.

The Partnership oversees a training program for computer controlled machines and facilitates partner and service coordination for the Calumet Green Manufacturing Partnership (CGMP). CGMP received a three-year, \$850,000 U.S. Department of Labor Green Jobs Innovation Fund award to implement a green manufacturing job training initiative in Chicago. Additionally, The Partnership supports manufacturing growth by subsidizing training costs for qualified students. CGMP has trained 119 individuals, 95% of whom earned at least one manufacturing credential. To date, students have earned a total of 319 credentials and

34 program graduates have been placed in training-related employment. Almost 20% of program participants are women, helping to open this field to non-traditional manufacturing workers.

In July 2013, the newly formed Chicagoland Workforce Funders Alliance announced its first industry-workforce partnership grant to the Illinois Manufacturing Excellence Center (IMEC) and ManufacturingWorks. IMEC delivers hands-on technical assistance and strategic advisement to help manufacturers be more productive and globally competitive. Since 1996, IMEC has helped more than 2,500 Illinois manufacturing companies to achieve more than \$1.5 billion in productivity, profit, and cost savings improvements. ManufacturingWorks is the regional Manufacturing Business Service Sector Center dedicated specifically to workforce development services directly impacting the manufacturing employer. The collaboration, which also includes the Chicago Manufacturing Renaissance Council, will connect IMEC's federally supported hands-on advisory services to help manufacturers become more productive and globally competitive with ManufacturingWorks' local expertise in revitalizing and strengthening manufacturing workforce development to meet employer needs.

Policy

Facilitate a strong local intersection between workforce development and economic development by bringing educators and workforce organizations into dialogue with manufacturers, manufacturing assistance organizations and government economic development staff to address manufacturing workforce needs.

Action 24

- Establish a HED working group of local government, manufacturing assistance and workforce organizations and educators to coordinate efforts to increase the manufacturing workforce.

Members of the Alliance include: The Chicago Community Trust, the Joyce Foundation, the Lloyd A. Fry Foundation, the Robert R. McCormick Foundation, the Polk Bros. Foundation, the Boeing Company, the United Way of Metropolitan Chicago, JP Morgan Chase, the Pritzker Traubert Family Foundation, the Woods Fund of Chicago, and the Michael Reese Health Trust.

REPLACEMENT AND GROWTH PROJECTIONS

Four of five job openings anticipated from retired workers

Occupation	Total Employment (2010)	Replacement Need	Employment Growth	Total Need	Entry-Level Salary	Experienced Worker Salary
Team Assemblers	37,900	6,200	2,100	8,300	\$18,400	\$33,510
Machinists	16,900	4,000	1,400	5,400	\$25,300	\$46,970
Production Workers, All Other	16,500	3,700	1,200	4,900	\$19,700	\$35,910
Helpers (Production Workers)	14,600	2,700	1,300	4,000	\$18,300	\$26,070
First-Line Supervisors of Production and Operating Workers	18,600	3,500	400	3,900	\$39,300	\$74,440
Inspectors, Testers, Sorters, Samplers, and Weighers	13,400	2,600	1,100	3,700	\$23,300	\$43,180
Welders, Cutters, Solderers, and Brazers	7,800	1,800	1,200	3,000	\$25,800	\$40,470
Packaging and Filling Machine Operators and Tenders	13,200	1,900	500	2,400	\$19,000	\$30,450
Computer-Controlled Machine Tool Operators, Metal and Plastic	5,200	1,100	1,000	2,100	\$25,100	\$42,520
Assemblers and Fabricators, All Other	7,200	1,200	800	2,000	\$20,300	\$31,600
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	9,300	1,700	200	1,900	\$21,500	\$36,310
Meat, Poultry, and Fish Cutters and Trimmers	3,800	900	600	1,500	\$18,700	\$26,260
Butchers and Meat Cutters	4,700	1,100	400	1,500	\$20,500	\$32,530
Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	3,900	1,100	300	1,400	\$26,000	\$40,750
Bakers	5,900	1,200	100	1,300	\$18,900	\$29,900
Printing Press Operators	8,500	1,400	(100)	1,300	\$22,800	\$44,410
Electrical and Electronic Equipment Assemblers	6,600	1,400	(400)	1,000	\$20,800	\$35,530
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	3,800	700	200	900	\$21,000	\$40,350
Food Batchmakers	3,600	800	0	800	\$20,800	\$31,960
Print Binding and Finishing Workers	2,500	900	(100)	800	\$26,800	\$47,370
Total	203,900	39,900	12,200	52,100		

SB Friedman determined the occupations that will require the greatest number of new employees over the next ten years in the Chicago region using data from the U.S. Bureau of Labor Statistics (BLS) and Illinois Department of Employment Security (as of 2010) in the Chicago-Joliet-Naperville Illinois Metropolitan Division of the MSA ("Illinois Division"). For a full description of the methodology see Chicago Sustainable Industries: Manufacturing Partnerships, Final Report, Feb. 26, 2012.

CREATING INDUSTRIAL PARKS

Thirteen of the 15 nonprofit organizations contracted by HED through its Local Industrial Retention Initiative (LIRI) program are geographically specific to a specific Industrial Corridor. Each LIRI assists businesses in accessing City programs such as the Small Business Improvement Fund and TIFWorks. LIRIs also market industrial sites, provide businesses with preliminary assistance in navigating the City's licensing, permit and inspection process, and call or visit company owners to gather feedback about business concerns.

Another localized City of Chicago program involves Special Service Areas (SSAs), known as Business Improvement Districts in other cities. SSAs are local tax districts that fund expanded services and programs through a localized property tax levy. SSA-funded projects can include public way maintenance and beautification; district marketing and advertising; business retention/attraction; special events and promotional activities; auto and bike transit; and security. The City SSAs are very successful, but only two out of 47 are within manufacturing areas: the Stockyards and Brighton Park Industrial Corridors. The majority of both budgets are used for security purposes, rather than manufacturing-specific needs.

Policy

Manage and market Chicago's Industrial Corridors as local employment centers.

Action 25

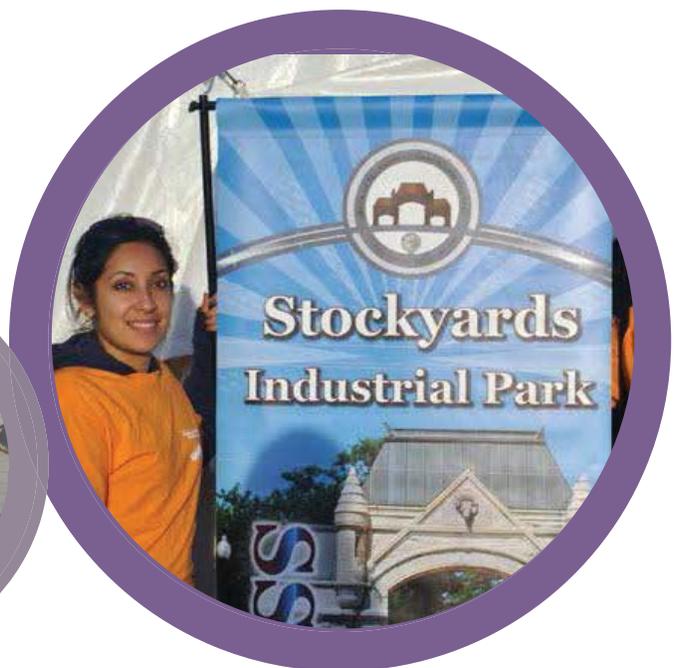
- Create an Industrial Corridor Special Service Area program and Industrial Corridor Perimeter Streetscape Design Guidelines that reflect the needs of existing manufacturers and support efforts to market the areas as modern industrial parks.

Action 26

- Work with local manufacturing organizations to: take advantage of an Industrial Corridor Special Service Area program; to develop customized marketing; and assist in creating capital improvement plans for each Industrial Corridor.

Action 27

- Integrate detailed Industrial Corridor and site information into World Business Chicago's programs to market Chicago's potential for advanced manufacturing investments.



GROWING SME'S

Many SMEs face challenges in identifying and accessing export markets, transition planning, and implementing capital projects that have long-term rates of return. With little or no research and development budgets, and few resources to identify and implement best practices techniques, SMEs need mechanisms and assistance to innovate their products and processes.

Some LIRI delegate agencies have missions and programs that extend beyond a geographic focus. These non-profits provide businesses with technical assistance and function as human resource assistants by helping small companies that may not have their own staff to screen and interview candidates, and/or assist with disciplinary issues. Two organizations, the Industrial Council of Nearwest Chicago (ICNC) and the North Business Industrial Council (NORBIC), are also State-funded International Trade Centers that help businesses develop the capacity and knowledge needed to export their products abroad and assist business owners in registering for sites and services used by each level of government when requesting proposals through Procurement Technical Assistance Centers (PTACs). PTACs also assist business owners to become certified woman-owned and/or minority-owned businesses.

Policy

Establish focused partnerships to improve skills, innovation and sustainability among individual manufacturing sub-sectors.

Action 28

- ◆ Enhance and expand existing programs to increase export-oriented, government supply and start-up assistance for manufacturing companies.

Action 29

- ◆ Leverage city dollars with federal dollars to implement and measure the effectiveness of manufacturing assistance programs for small and medium sized companies.

Action 30

- ◆ Initiate energy efficiency projects by coordinating with the Illinois Manufacturing Excellence Center and ComEd service providers beginning in the top five energy consuming Industrial Corridors.

Action 31

- ◆ Encourage the reuse and reduction of solid waste through the coordination of services provided by the Greater Chicago Waste to Profit Network and IMEC.



REGULATORY TRANSPARENCY

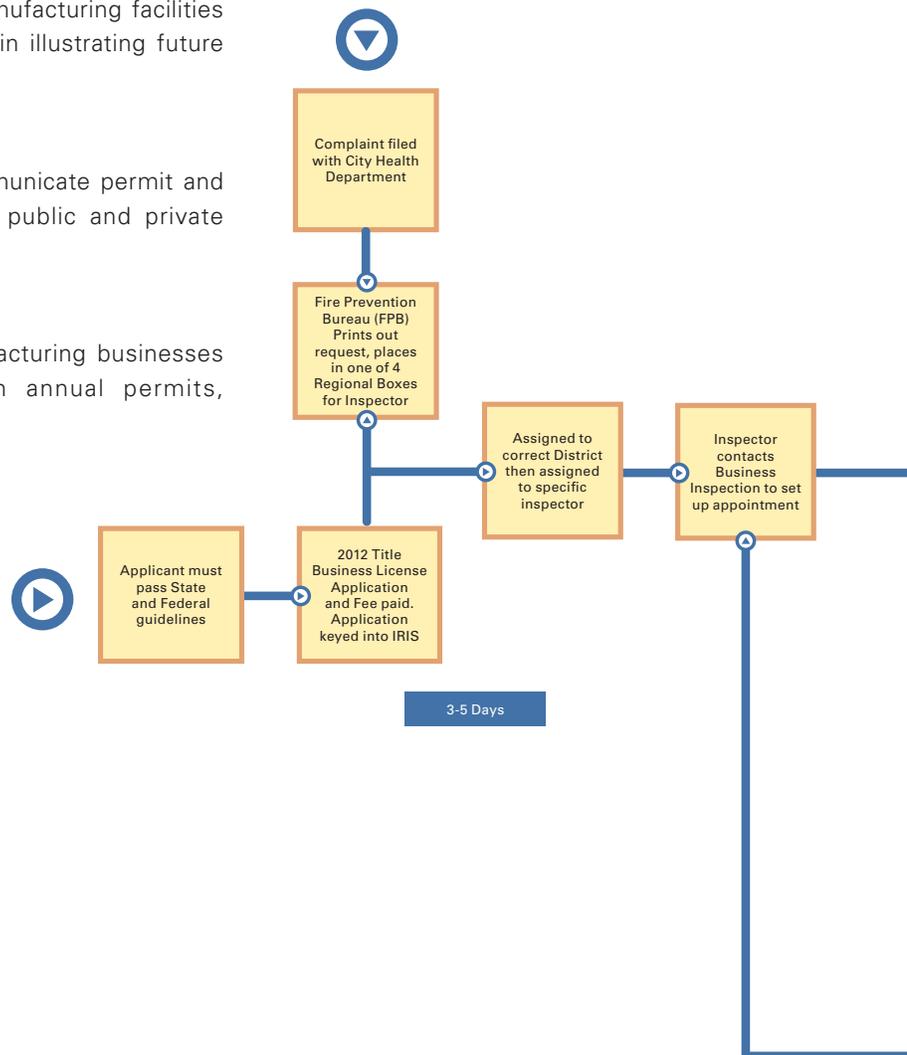
The health and safety of residents, workers, and the environment are widely accepted public goals that have evolved and become more complex during the last century. While recent efficiencies have reduced the number of manufacturing licenses in Chicago to one, virtually all of the same permit requirements remain. IMEC worked with City staff to prepare value stream maps of the permitting, licensing and inspection processes for manufacturing facilities in Chicago as the first step in illustrating future efficiency improvements.

Policy

Continually and clearly communicate permit and licensing processes to the public and private industry.

Action 32

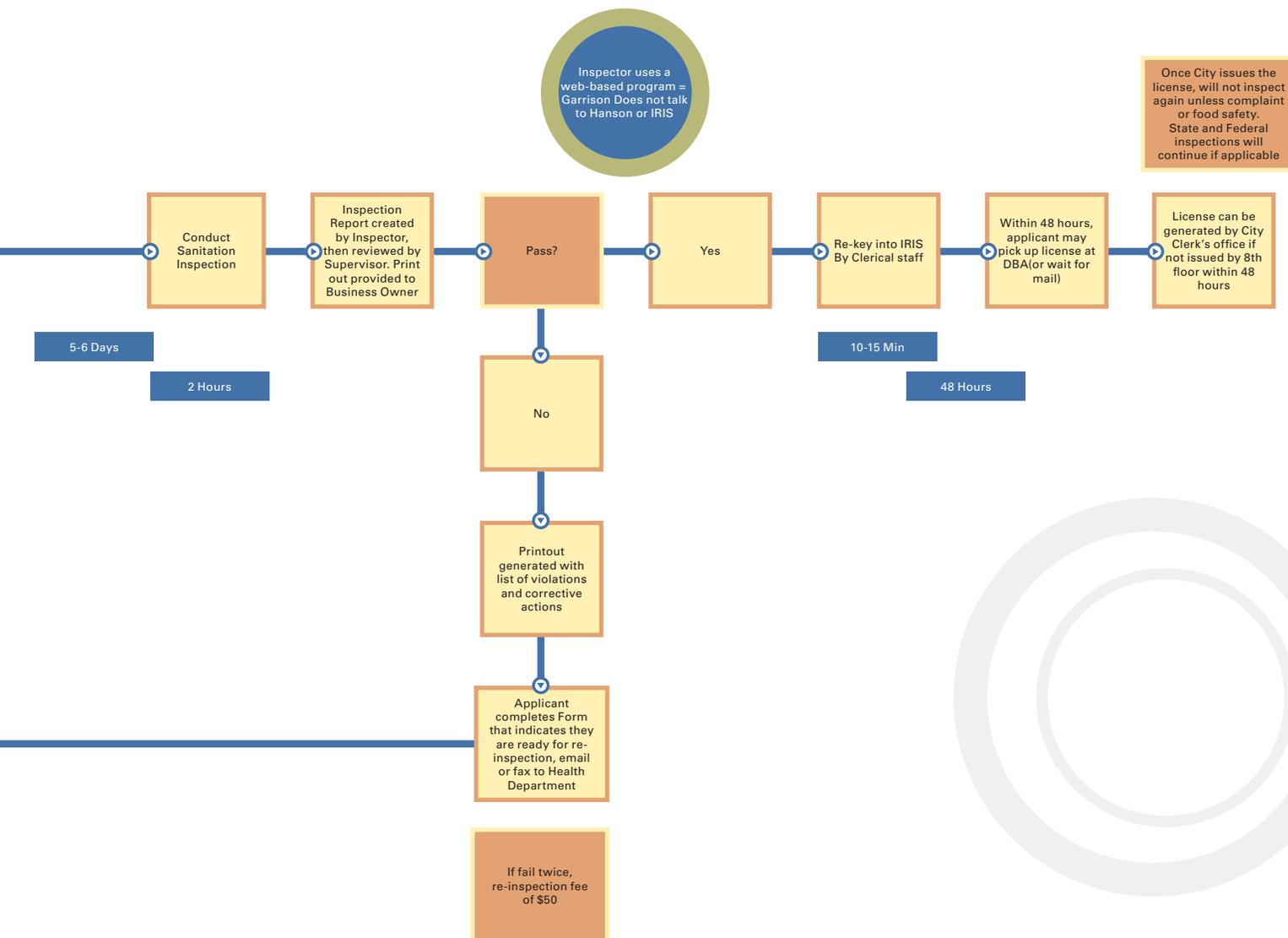
- ▶ Create a guide for manufacturing businesses detailing information on annual permits, inspections, and costs.





NAVIGATING PERMITS

In response to input from manufacturers, IMEC and the City created value stream maps illustrating how manufacturing licenses are reviewed and approved and how inspections are triggered for every department within the City involved in the manufacturing business license process. The map illustrates the City of Chicago Health Department's process for reviewing manufacturing related business licenses, permits and issues that trigger an inspection by their department.



APPENDICES

RESOURCES

Agencies	Apparel Industry	BOTY	CAIC	18th St Develop	GNCDC	GSDC	ICNC	JARC	Lake Kinzie Ind Lead	Lawndale BLDC	LEED	Little Village	NORBIC	Peterson Pulaski	Randolph Fulton
LIRI	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Assist companies in Industrial Corridors															
SBIF		•	•				•	•		•			•		
504 Loans							•						•		
TIF Financing		•	•	•	•	•	•	•	•	•	•	•	•	•	•
6B, 7a, Other Property Tax Enterprize Zone		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Incubator Space							•								
SSA			•												
Provide marketing															
Neighborhood services															
Small Business Development Center							•						•		
Financial, marketing, SBA Loans							•						•		
Business plan assistance							•						•		
Procurement Technical Assistance C													•		
Government Certifications													•		
Access to Government Contracts													•		
HUBZone Designation													•		
International Trade Center							•						•		
Export assistance							•						•		
Analysis for International expansion							•						•		
NAFTA													•		
Assistance w Foreign Trade													•		
Customs													•		
EDGE Tax Credits													•		
Energy Programs													•		
Aggregate Energy Program													•		
Workforce Programs													•		
Training			•					•							
ETIP training grants			•				•	•					•		
OJT Wage Reimbursements			•				•						•		
Incumbent Worker Training grants													•		
TIFWorks								•					•		
JTED Training grants								•					•		
Professional Services Provider Network													•		
Trade Adjustment Assistance													•		

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*These studies were paid for in part by a grant from the U.S. Department of Commerce, Economic Development Agency

PHOTOGRAPH INDEX

Photographs included in this plan are images of the following Chicago-based manufacturers:

- ▶ Newark Group
- ▶ Finkl
- ▶ Ford Motor Co.
- ▶ InnerGlow
- ▶ Luster
- ▶ Milk and Honey
- ▶ MicroLution
- ▶ M&M/Mars
- ▶ PortionPac
- ▶ Wheatland Tube

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Metropolitan Planning Council
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Federal Reserve Bank of Chicago
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Chicago Department of Housing and Economic Development
Formerly of LISC/Chicago
Illinois Union Pacific Railroad
Illinois Manufacturing Excellence Center
Chicago Manufacturing Renaissance Council
Cook County Bureau of Community Development
City of Chicago, 27th Ward
Chicago Metropolitan Agency for Planning
Chicago Cook Workforce Partnership
Jones Lang LaSalle Americas, Inc
Capraro Consulting Services
PepsiCo Americas Beverages
Formerly of Metro Chicago Information Center
UrbanCenter for Neighborhood Technology
Chicago Cook Workforce Partnership
Edelman
Industrial Services, CB Richard Ellis
Delta Institute
Chicago Department of Housing and Economic Development
Ford Motor Company
Chicago Department of Housing and Economic Development
Testa Produce, Inc
Industrial Council of Nearwest Chicago
Chicagoland Chamber of Commerce Foundation
Roosevelt University
Chicago Department of Family and Support Services
Sidera Networks
Structured Development Company
Chicago Department of Housing and Economic Development
North Branch Works
Federal Reserve Bank of Chicago
Chicago Department of Housing and Economic Development
Skidmore, Owings & Merrill
AT&T
City of Chicago, Office of the Mayor
Recycling Services, Inc
FitzGerald Associates Architects
Five Winds Consulting
Industrial Council of Nearwest Chicago
Greater Southwest Development Corp
Crown Community Development
City of Chicago Department of Transportation
City Colleges of Chicago
Metropolis Strategies
Tur Partners
North Branch Works
MacArthur Foundation
Illinois Manufacturing Excellence Center
UIC CUPPA
Local First Chicago
Illinois Institute of Technology
WaterSaver Faucet Co
Chicago Department of Transportation
PortionPac Chemical Corporation
RW Ventures, LLC
Chicago Department of Business Affairs and Consumer Protection
Shefsky & Froelich
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Ray Whittington
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Kimberly Worthington
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City Colleges of Chicago
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G.E. Mathis Company
Roosevelt University
MFZ Ventures
DM Construction Management
Tooling and Manufacturing Association
ULI Chicago
Chicago Department of Housing and Economic Development
Chicago Department of Housing and Economic Development
Chicago Department of Housing and Economic Development
Back of the Yards Neighborhood Council
Central Steel Fabricators, Inc
Cushman & Wakefield
Foresight Design
Skidmore, Owings & Merrill LLP
OH Community Partners
Taylor Business Institute
Comcast
City Colleges of Chicago
Chicagoland Chamber of Commerce
Metropolis Strategies
Chicago Federation of Labor
Formerly of Metro Chicago Information Center
Chicago Industrial Real Estate
Chicago Department of Housing and Economic Development
Formerly with Cook County Bureau of Economic Development
Chicago Department of Family and Support Services
CTK Chicago Partners
Chicago Department of Housing and Economic Development
Illinois Department of Commerce and Economic Opportunity
Metropolitan Water Reclamation District
Com Ed
Metropolitan Planning Council
Norfolk Southern Corporation
City Colleges of Chicago
Chicago Department of Business Affairs and Consumer Protection
Galapagos Advisors
Federal Reserve Bank of Chicago
Chicago of City, Ward 31
Chicago Manufacturing Renaissance Council
Testa Produce
Kedzie Elston Business and Industrial Council
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Chicago Transit Authority
Peterson Pulaski Business and Industrial Council
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Formerly with LISC/Chicago
Chicago Department of Fleet and Facility Management

*Steering Committee or Task Force Co-Chair

Chicago's well-known manufacturers and related industrial companies continue to evolve as a critical component of the city's economic health and diversity.

LEADERS IN MANUFACTURING



ANDY PHILLIP | MICROLUTION INC.

Microlution makes machines that its customers use to make small, high-precision parts, like a lens that, through surgery, replaces the natural lens of the eye of someone who has cataracts, or the tiny electronics that go into cell phones. That's one of the things Andy Phillip loves about his work: the variety. "One day we'll work on a machine that makes a lens for the human eye; the next day we'll make a machine that manufactures parts for a car engine," he says. "It's a very high-tech product that we make," Andy says. "That means everything from the components that go into the machines, the design of the machines, the computers involved in running the equipment, the software ... We make a machine that uses lasers to make the finished part. It can do amazing things."



MYRA DYER A. FINKL & SONS STEEL

Founded in 1879, Finkl steel products are sold to manufacturers throughout the U.S. and more than 18 other countries. Myra Dyer is a whirl of activity as she orders stock, arranges logistics, and oversees quality control to ensure customers are satisfied.



CAROL WATSON MILK AND HONEY GRANOLA

When Carol Watson started Milk & Honey Granola, she probably didn't imagine renowned chef, author and TV personality Rick Bayless taking an interest in her product. Not only did this popular advocate of local food become a regular granola customer, he proposed they create a new flavor together. After a few months of working out the recipe together, Mexican Mix Granola was born. Milk & Honey is a small company with a big presence. Its hand-stirred, hand-baked granola is carried in Whole Foods stores across the country. It's even sold in Hawaii. "A friend was in Hawaii and sent me a picture of our granola there," Carol said. "The fact that that product came out of our space right here amazes me."





**CHICAGO
SUSTAINABLE INDUSTRIES**
A BUSINESS PLAN FOR MANUFACTURING