

The Federal Role in Supporting Urban Manufacturing

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I. LOS ANGELES

MAJOR TRENDS

The Los Angeles metropolitan area is the nation's largest manufacturing center in employment terms. Los Angeles County alone employs more manufacturing workers than the entire state of Michigan.

Over the past few decades, Los Angeles has transformed from an area of big, branch plants in auto, steel, and aerospace to dispersed networks of smaller manufacturers serving different supply-chain segments and industries. In fact, over half of the 14,000 manufacturers in Los Angeles County employ fewer than ten workers. Between 2000 and 2008, the number of people employed in food, beverage, tobacco, petroleum, and coal product manufacturing in the county *increased*, while employment in virtually every other manufacturing industry declined. Apparel, computer and electronic products, furniture, and textile industries experienced the greatest job losses in the sector during this period. Despite declines in some industries, today, manufacturers in Los Angeles County still overwhelmingly represent apparel, metals and plastics, printing, and food processing industries.

The area's manufacturing workforce is the second largest of any sector, after healthcare, and larger than those of the area's construction, transportation, and education sectors combined. In June 2010, 538,000 workers were employed in the sector areawide, an increase of 13,100 workers from June 2009; over 100,000 of these workers are employed in the City of Los Angeles. The percentage of Angelenos employed in manufacturing is disproportionately greater in northern Los Angeles, East Los Angeles and the communities surrounding the San Pedro and Wilmington waterfronts, located south of the city center. *Over one-third* of the residents of Central Los Angeles hold industrial jobs, including in manufacturing, warehousing, wholesale trade, and transportation.

Foreign-born workers—Latino/-a workers in particular—constitute the majority of those employed by manufacturers in Los Angeles County. There is an especially high prevalence of Latino workers in the county's food, garment and furniture industries. These workers help to support the area's revenue base; if 30 percent of each of these industries were to disappear from Los Angeles, the city and Los Angeles County would lose an estimated \$17 million in taxes. Given the demographics of their workforces, these industries are also disproportionately affected by raids by federal immigration authorities, an issue that has been raised publicly by Mayor Antonio Villagarosa and LAEDC in recent years and widely debated.

Manufacturers in Los Angeles County pay average annual wages that exceed those in the retail sector, which employs the third-largest workforce in the metropolitan region. For instance, jobs in women's cut-and-sew apparel and architectural metals manufacturing industries pay an average of \$37,500 and \$45,400 per year, respectively, while the average annual wage for general merchandise stores in the county is \$22,900.

Manufacturing activities in Los Angeles County have positive effects on the greater metropolitan economy through direct, indirect and induced job creation, across sectors. For example, the average business in the Bread and Bakery Product Manufacturing subsector (NAICS Code 31181) in the county employs 100 workers. For each of these 100 manufacturing jobs, 33 jobs are indirectly created in the county: four jobs in management; eight jobs in waste and administrative services; seven jobs in technical, scientific and professional services; three jobs in manufacturing; three jobs in wholesale trade; and eight jobs in other/miscellaneous industries.

The city's industrial sector has linkages to many nearby non-industrial businesses—such as those in entertainment, fashion and financial-services sectors—providing them with quick turnaround of specialized products. For example, in and around Downtown Los Angeles, garment manufacturers supply the fashion industry with finishings for imported apparel; industrial printers supply paper products to local corporations; and hotels, schools, groceries, and restaurants rely on the production, storage and distribution activities of proximately located food and beverage manufacturers and warehouses.

Together, manufacturing, international trade, and logistics comprise 42 percent of the region's employment base. 1 out of every 16 jobs in the region is linked to logistics, and 1 out of every 7 jobs in the region is tied to trade. The Ports of Los Angeles and Long Beach are among the busiest in the world, serving as major freight gateways for the region and nation; 40 percent of America's imported container units pass through these ports, which handle over one million container units annually. The city is also a hub for air-cargo movement, as Los Angeles Airport (LAX) is the second largest air-cargo center in the United States. Shipment of cargo to and from LAX is supported by regional/intercity road networks and trucking operations.

The demand for industrial land and space in Los Angeles is the strongest of any city in the United States, as reflected by vacancy rates consistently below two percent. Well-located industrial land and space are assets to Los Angeles' revenue base; in 2006, for example, Greater Downtown Los Angeles' industrial zones alone reported over \$10 billion in revenues. Unfortunately, as in other strong-market cities—such as Seattle and New York—market-based and administrative obstacles continue to hamper the retention of industrial-zoned land for manufacturing and related industrial uses.

KEY CHALLENGES

1. Retaining and Strengthening Industry Clusters

Industrial 'clustering' is not a new phenomenon in Los Angeles County. The Alameda Corridor—a twenty-mile cargo expressway that runs alongside a stretch of industrial sites and links Los Angeles' port and downtown areas—has been part of a multi-billion-dollar manufacturing cluster for twenty years. Nearby Burbank, also located in the county, is known for media and entertainment clusters that support high-wage jobs and sophisticated production

and processing activities. These businesses run small-scale, high-quality operations that are not land intensive but thrive on access to middle- and high-skilled workers, affordable space, and transport links, in order to create value and stay competitive.

Urban strategies that support industrial clusters are extremely valuable economic development tools. However, a key challenge for community-based organizations, city and state agencies, companies, and their partners is ensuring that cluster-based approaches are substantiated by sound and accurate sectoral analyses, labor-market research, and industry profiles. Clusters in central Los Angeles, like others in the region, represent distinct subsectors with unique demands and customer bases; the businesses that make up cluster networks compete according to industry-specific 'rules of the road' based on their respective business models and capital, labor, land, transportation, and other needs. Sustaining such clusters in the long term requires aligning land-use and ownership strategies and financing tools and making the up-front, long-term commitments that help businesses remain co-located, even as they endure inevitable market fluctuations. Geographic proximity is not enough, however, to support a successful cluster. Co-location does not guarantee that businesses within a given cluster will synchronize their efforts or succeed in bridging gaps in services and information; indeed, while some small manufacturing companies along the Alameda Corridor do transact and exchange ideas, linkages between businesses are minimal.

2. Meeting Unmet Demand for Industrial Land and Space

A permissive zoning code and entitlement processes, as well as market forces, have spurred the construction of housing and other structures in the city's industrial areas. In 2007, 26 percent of the city's industrial-zoned land supply was being used for *non-industrial* purposes, leaving merely six percent of the city's land available for industrial uses.

Conversion and speculative pressures have driven up the cost of industrial land and increasingly priced out industrial tenants in Central Los Angeles and neighboring areas. As a result, as of 2008, the City of Los Angeles has an unmet demand for 3 million square feet of industrial land. Residential construction in the city's industrial areas, meanwhile, has done little to address the city's affordable-housing shortage. According to the city's Department of City Planning and CRA/LA, less than 3 percent of the housing built in the city's industrial-zoned areas between 2001 and 2007 was affordable.

LOCAL RESPONSES

1. Community Redevelopment Agency of Los Angeles (CRA/LA)

CRA/LA is a public agency that supports catalytic investments in 31 communities around Los Angeles that have been designated as redevelopment project areas. The agency crafts redevelopment plans, directs financing (mostly through TIFs) to projects, forges community partnerships, and seeks to create conditions that attract greater private investment and opportunities in economically depressed neighborhoods.

Industrial Incentive Program (IIP)

In November 2010, Los Angeles' City Council adopted an Industrial Incentive Program (IIP) and allocated \$200,000 in funding for its first year. IIP consists of three elements: *conditional loans* to purchase equipment or rehabilitate or develop property for manufacturing or industrial purposes; *feasibility assistance grants* to pay for consulting services for specified purposes, including logistics planning, 'leaning' strategies, and industrial rehabilitation; and *energy audit*

grants to identify opportunities for enhanced energy efficiency. Loans administered through the program will be conditioned on well-defined, threshold criteria, e.g. loans for equipment will be provided only once applicants' other borrowing options have been exhausted.

IIP will be made available to businesses in each of the 31 project areas served by CRA/LA.

Clean Tech Corridor (CTC)

The Clean Tech Corridor is a four-mile-long district in downtown Los Angeles that runs along the Los Angeles River and falls within CRA/LA's Adelante East Side, Chinatown Redevelopment and Central Industrial Project Areas. The City of Los Angeles is currently taking steps to actualize a vision for the 2,000-acre site, which will serve as a 'clean technology' hub occupied by companies committed to environmentally sustainable products, processes, and building materials. In December 2010, CRA/LA solicited proposals from companies interested in locating within a 20-acre portion of the site. Development of the CTC offers the city an opportunity to upgrade obsolete building stock and deteriorating infrastructure; improve warehousing, distribution, and transport networks; and create quality jobs for local residents.

Wilmington Industrial Park (WIP)

The 232-acre Wilmington Industrial Park (WIP) primarily supports logistics and warehousing but also some manufacturing. Many of the industrial tenants in the WIP employ residents from Wilmington, both in permanent and seasonal jobs. CRA/LA works with developers and business owners to achieve a range of goals, from acquisition, assembly, remediation, and expansion, to assistance with managing utilities, paving streets, and reducing truck traffic. Among the tenants CRA has served in WIP are small companies that produce sporting (soccer) goods; provide cold-storage/warehousing for seafood products; and specialize in the production of Mexican food items, such as salsa.

2. Community Development Technologies Center (CDTech)

CDTech, a non-profit founded in 1995, seeks to help clusters of small-scale industries in Los Angeles close technology, network, skill, and informational gaps that weaken productivity and competitiveness, through applied research, training, and technical assistance. The organization also emphasizes bottom-up networking between businesses within targeted industry clusters; energy efficiency and green product development; and outreach to local communities, particularly in low-income, immigrant neighborhoods whose residents comprise an overwhelming portion of the city's manufacturing workforce. These efforts are part of a 'community development' framework that links industrial employment, entrepreneurial resources and environmental sustainability.

Los Angeles Manufacturing Networks Initiative (LAMNI)

LAMNI was established in 1997 as a CDTech program, under the guidance of Linda Griego of Rebuild Los Angeles (RLA). It is an industrial and economic development program that organizes and supports flexible networks of small- and medium-sized manufacturing firms in textiles/apparels, toy manufacturing, ethnic/specialty food processing, and wholesaling.

Green Urban Manufacturing Initiative (GUMI)

GUMI was initiated under a two-year planning grant with the aim of 'greening' manufacturing processes and value-added goods that have export potential and creating and preserving green jobs. GUMI is currently winding down its initial/research phase, during which it explored 'green' incentive programs and technical-assistance options available to industrial businesses; financing implications of 'greening'; health and safety concerns; domestic and international

opportunities for ‘green’ market expansion; and the potential for eco-industrial park development. The initiative targets four local industries—food processing, metals, apparel, and furniture—and its industry partners include the California Metals Coalition (CMC) and the Food Industry Business Roundtable (FIBR).

Worker Income Security Program (WISP)

Developed by CDTEch, WISP is an employer-based Individual Development Account (IDA) program with education and training components in English-as-a-Second-Language (ESL) and basic skills development. Many of the participating employers in the program are drawn from CDTEch’s LAMNI program.

II. CLEVELAND

MAJOR TRENDS

From its early years as a center for steel and iron processing to its world-class standing in metals fabrication and medical-device production, Cleveland’s manufacturing legacy is renowned. Over the past thirty years, however, traditional industries in this Rust Belt city have faced several setbacks, including public disinvestment, limited private financing options, and a citywide population decline of 350,000. Manufacturing and construction have made up the largest share of private-sector job losses in the city in recent decades.

As Cleveland’s manufacturing sector has contracted, other industries have repositioned and reinvented themselves within the local and regional economy, through public, private and institutional support. Between 2000 and 2007, during which Cleveland lost over 5,000 manufacturing jobs, employment in central Cleveland *grew* in Public Administration, Accommodation and Food Services, and Professional, Scientific and Technical Services sectors. Today, the leading industries in greater Cleveland are medical services and biotechnology, followed by education and legal and corporate services. Health care and biotechnology in particular have also spun off many new jobs in allied fields, such as home-health-aide services, medical-supply manufacturing, and machine repair.

The health care sector has had a multiplier effect on the regional economy over the past fifteen years and offers Clevelanders an assortment of employment opportunities, some of which, such as nursing, can provide fairly stable and high wages. However, the sector’s dominance relative to every other industry suggests a problematic lack of economic diversity and fiscal resilience in the area. Some experts cite concerns that Cleveland’s health-care-led economy is unsustainable and unbalanced as a matter of long-term economic development—particularly given the precariousness of the city’s finance sector in recent years—and that it prevents the absorption and mobility of different types of workers, with a variety of talents and skill sets, into metropolitan labor markets.

At the same time, since 2007, Cleveland has seen its manufacturing workforce shrink by over 20 percent, and a ‘jobs recovery’ in Cleveland’s manufacturing sector does not appear imminent. The shortage of skilled workers created by soaring high school drop-out rates and limited student interest in STEM fields and industrial careers is a particularly acute barrier to diversifying Cleveland’s workforce and economy and strengthening its export base.

KEY CHALLENGES

1. Abundance of Abandoned, Vacant and Contaminated Land

While the decline in manufacturing employment in Cleveland can partly be attributed to recessionary pressures, global competition, and technology-dependent productivity gains, it has undeniably been fueled by years of unchecked failures in housing and land markets and short-sighted planning and funding decisions. Thus, as in other Rust Belt cities, deindustrialization in Cleveland has gone hand-in-hand with trends of depopulation, depressed land prices, and housing-market distortions. Today, an enduring hurdle to industrial (re)development in central Cleveland is the overabundance of abandoned, vacant, and contaminated properties and inadequate building stock that can be seen throughout the city. This problem has perpetuated market problems and 'blight,' as well as mismatches between private-sector demand and supplies of appropriately fitted industrial space. Maintaining, clearing, and cleaning up abandoned and contaminated industrial and commercial properties is a costly affair for taxpayers; the city of Cleveland spends thousands of dollars annually managing vacancies and demolishing structures on derelict sites in industrial areas. Rampant tax delinquencies also contribute to fiscal stagnation.

According to Tracey Nichols of Cleveland's Department of Economic Development, the city suffers from a dire lack of funding for industrial demolitions and redevelopment, and existing funding streams are often diverted for residential projects. Delayed demolitions can drastically slow down neighborhood renewal and economic development efforts, as condemned structures continue to occupy large parcels for long periods of time, tying up land and resources.

2. Limited Resources for Product Innovation and Commercialization

Like SUMs in other cities, many small manufacturers in Cleveland struggle, in spite of their entrepreneurial vision, to pull together the capital, resources, and workers needed to successfully research, design, test, and innovate new prototypes; retool their business models and technologies; and revamp their marketing and networking strategies to get their goods to market. With a change of federal leadership in recent years and growing recognition of the importance of industrial innovation, greater attention has been brought to the need for supporting regional, 'driver' industries, such as wind, through 'innovation' clusters and other place-based strategies that leverage local assets. However, it has become clear that—in the absence of resources to help spur product improvements, supply-chain growth, and marketability along clearly mapped channels—global competition threatens to displace production and reconfigure markets of high-value goods, even in promising sectors that have passed through the early stages of commercialization.

Under these conditions, SUMs across Northeast Ohio, including Cleveland, continue to face serious obstacles to identifying new product opportunities and meeting evolving market demands, especially where there are informational and network gaps. Many intermediaries—some of which work with Ohio MEP—are ideally placed to help manufacturers expand the reach of supply-chains by combining access to institutional R&D, sector-specific knowledge of markets and sophisticated familiarity with regional supply bases, and working relationships with industry and intermediaries in ways that make product improvement and, ultimately, commercialization possible. Such resources and services, however, remain insufficiently integrated with job-training initiatives, and their impact is typically limited by the base of support available at any given time.

LOCAL RESPONSES

1. Manufacturing Advocacy & Growth Network (MAGNET)

The Manufacturing Advocacy and Growth Network (MAGNET) is a Cleveland-based nonprofit and partner of Ohio MEP, with satellite sites in Youngstown, Canton, Lima and Toledo. Through a range of services, networking platforms and trainings, MAGNET helps small manufacturing companies throughout the Northeast Ohio region enhance productivity and better position themselves to innovate and grow.

MAGNET administers the ***Cuyahoga County New Product Development and Entrepreneurship Loan Fund***, which awards competitive, three-year, interest-free loans to small companies seeking support for product development, prototyping, or patenting. As of 2009, the Fund has helped over 30 products transition from ideas to prototype to market. MAGNET's expertise also helps small manufacturers strengthen their business models, network with regional suppliers, navigate regulations, obtain financing, upgrade processes, access governmental incentive programs, and stay updated on policies affecting the sector.

2. West Side Industrial Retention & Expansion Network (WIRE-Net)

WIRE-Net serves a regional base of industries, including small manufacturers in the greater Cleveland area. The organization houses several manufacturing-related projects, including a youth-centered initiative known as YouthWorthForce, as well as the ***Great Lakes Wind Network (GLWN)***.

The GLWN is an industry-based partnership between WIRE-Net, Cleveland's Department of Economic Development, and a group of foundations. GLWN has undertaken supply-chain mapping projects, among other efforts, to connect wind-turbine component suppliers, regional OEMs, and existing and potential customer bases. GLWN's efforts supplement those of the Cuyahoga Regional Energy Development Task Force, which was formed in 2006 to explore Cleveland's potential to become, in the words of Ohio Senator Sherrod Brown, "the Silicon Valley of alternative energy."

3. Cleveland Industrial-Commercial Land Bank

Cleveland's Industrial-Commercial Land Bank (CICLB) was established in 2005 with the goal of delivering 'shovel-ready' sites for use by manufacturers and other commercial businesses. The CICLB identifies and assembles city-owned parcels that lack sufficient private-sector resources for redevelopment and assists end-users with resolving related environmental, legal, and regulatory matters. Between 2005 and 2009, the CICLB invested over \$8 million to acquire 100 brownfield sites and deliver 30 acres of industrial property to the market, including the former Cleveland Asphalt Plant and Midland Steel. Unfortunately, anecdotal reports indicate that CICLB's efforts remain poorly integrated with broader economic-development and planning approaches. According to Tracey Nichols, Cleveland's Director of Economic Development, the few projects that the city has undertaken through the CICLB have involved particularly challenging parcels, such as a 10-acre Superfund site contaminated with PCBs that required \$6 million to clean up. The city anticipates greater successes in the coming year through the acquisition of smaller sites. The city also intends to continue its efforts to support promising, private redevelopment projects with technical support and permitting assistance.

III. SEATTLE

MAJOR TRENDS

Seattle is home to some of the nation's leading industrial and technology enterprises, including the Boeing Company and Microsoft, as well as prominent healthcare and research clusters. The successes of many of Seattle's small manufacturers have been spurred by regional economic growth and local cooperation in recent years. They have also benefited from extensive networks of rail, water and highway options, including the Port of Seattle, I-90, and I-5.

Nevertheless, as in other American cities, a confluence of factors has led to shrinkage of Seattle's manufacturing workforce over the past fifteen years. Between 1995 and 2004, manufacturing jobs in Seattle declined by 26 percent. This trend shifted slightly in 2004, with increases seen each year between 2004 and 2008, stemming from job growth in a few discrete subsectors, including Aerospace and Ship and Boat Building. By 2008, over 30,000 manufacturing jobs remained in the city. Meanwhile, the number of manufacturing plants in Seattle steadily *declined* between 1995 and 2008, from 1,209 to 894. The city has also experienced an overall decrease in the number of non-manufacturing industrial businesses since 1995, including those in wholesale, trade, and utilities. During this same period, the number of construction firms in the city grew by 30 percent.

As in Los Angeles and New York City, Seattle's tight land market ensures that industrial vacancy rates remain very low. However, per Washington's Growth Management Act (GMA), Seattle is required to account for regional planning and growth contexts in managing its residential, commercial, and industrial land supplies. Under the statewide Buildable Lands Program, established pursuant to the GMA, cities and towns seek to achieve their industrial goals through an ongoing evaluation and analysis of relevant data and land-related metrics. Even so, pressure on central industrial lands—including in designated Manufacturing/ Industrial Centers (MICs)—has been a concern for some Seattle manufacturers over the past decade.

KEY CHALLENGE

Shortage of Appropriately Skilled Workers

Seattle is one of the most highly educated cities in the United States. Yet, like many of their counterparts around the nation, Seattle's manufacturing businesses feel constrained by a mismatch between in-demand skills and those found within the metropolitan workforce. Amidst an abundance of 'white collar' know-how, the need for appropriately skilled workers remains the city's biggest hurdle to industrial growth, according to surveys of Seattle manufacturers. Trade skills in transportation, welding, and machine operation are in high demand, but qualified talent is difficult to locate and retain—a scenario that is likely to worsen with increasing attrition in the sector, as more of the city's aging manufacturing workers approach retirement.

The Center for Advanced Manufacturing in the Puget Sound, the Manufacturing Industrial Council of Seattle, and others, report that misperceptions of manufacturing careers perpetuate the shortage of qualified industrial workers in the city. Manufacturing jobs are inaccurately seen

as risky, tediously repetitive, and part of an ‘eroding’ sector with dead-end prospects. This characterization of manufacturing ignores the diversity of business types and operations within the sector and the many exciting opportunities for advancement in workplaces that have—through the popularization of new technologies and lean and green practices—become safer, ‘cleaner,’ and more resourceful over the years.

Through a number of collaborative efforts across a range of scales—local, county, regional, and state-based—public agencies, non-profits, academic institutions, and industry have been partnering for years to improve manufacturing workforce outcomes. While Seattle’s workforce development community are attuned and sensitive to demands within the business community for skilled, industrial workers, and works closely with local workforce councils to improve skill standards, synching industry demands and local responses can be a challenge; small manufacturers often require immediacy in filling positions, while it usually takes time for workforce programs and schools to ‘catch up’ in terms of funding and resources. Looking ahead to long-term solutions, these conditions necessitate a stronger public commitment to K-12 STEM learning, apprenticeship placements, career ‘ladders,’ and pipelines to industrial jobs.

Industrial workforce development and industrial retention are top priorities of Seattle’s Office of Economic Development (OED), which maintains constructive relationships with other city agencies and non-governmental partners.

LOCAL RESPONSES

1. Puget Sound Industrial Excellence Center

The Puget Sound Industrial Excellence Center (PSIEC)—home to Washington’s largest industrial training/apprenticeship program—presents an outstanding model of urban collaboration that bridges industry, government, labor, philanthropic partners, and city residents. PSIEC’s mission is to train Seattle’s low-income populations in specialized, in-demand trades and link them to opportunities within the manufacturing sector, as well as in industries such as logistics, transportation, green construction, and energy systems. The Center has 2,500 trainees annually and also offers on-campus, “one stop” business and entrepreneurial services to nearby, industrial firms within the Duwamish Corridor.

PSIEC is based on a 13-acre satellite campus of South Seattle Community College, situated south of the city’s downtown area, in Georgetown, at the heart of Seattle’s industrial area. Developed partly on a former hazardous-waste site, the Georgetown campus and PSIEC have revitalized the surrounding neighborhood and helped to build connectivity between this industrial zone and the city center. Transportation to and from the site is well-integrated with major bus networks, making PSIEC accessible to inner-city residents. Also, because the Center is located along the Duwamish River and near prime manufacturing and logistics operations, it is spatially connected to the city’s wider manufacturing community—a benefit to students, instructors and employers.

2. Seattle Jobs Initiative (SJI)

The Seattle Jobs Initiative (SJI) was established in 1995 as part of an eight-year effort led by the Annie E. Casey Foundation. SJI’s founding objective was to promote “career pathways” to training and ‘family wage’ employment for Seattle’s low-income residents. The manufacturing sector (i.e. general manufacturing, computerized numerical control/machine operation, and electronics assembly) was included as a target sector within SJI’s purview after it was

determined that the sector was poised for growth; that there were sufficient entry-level openings within Seattle's manufacturing sector; and that these jobs provided competitive wages and viable pathways for occupational advancement.

Since its creation, SJI has served as a valuable intermediary between community-based organizations (CBOs) and civic, business, and industry partners, placing nearly 6,000 local residents in jobs through sustained partnerships with community colleges, labor, and business networks. Over the years, SJI has remained responsive to shifts in industry demand, phasing out and adding programs and resources as dictated by its research and data-driven analysis of sectoral trends. SJI has also adapted to the demands of local communities, by helping participants strengthen 'soft skills' and language abilities—through interview/job search and ESL trainings—and by providing wrap-around services.

IV. NEW YORK CITY

MAJOR TRENDS

New York City's density and high concentration of talent, services, logistics, and suppliers make it a superior location for the city's 7,000 manufacturers. While the city's manufacturing landscape has changed significantly since the postwar era—during which the city's industrial workforce was over one-million strong—manufacturing remains indispensable to the city's economy and the vitality of its communities. Today, the city's manufacturing workforce totals 100,000, with 120,000 more workers employed in associated industries, such as wholesaling, transportation, and utilities.

New York City's manufacturing and service sectors are deeply interdependent. Businesses in these sectors rely on shared familiarity with consumer preferences and industry-specific challenges and standards. The integration of design, service, and production elements has become increasingly common among the city's small manufacturers in recent years and often helps businesses forge a competitive edge. Also, in sectors such as food processing and printing, businesses that initially focus on distribution-side services sometimes opt to expand operations to include small-scale production of specialized goods that compliment their business models and respond to demands within niche markets.

Manufacturing in New York City not only generates wealth through linkages with other industries, but it also plays a role in supporting socioeconomic and occupational diversity in the city. Sixty-nine percent of the city's manufacturing workers are people of color. In manufacturing production occupations specifically, 82 percent are people of color, and immigrants account for 79 percent of these types of jobs. Manufacturing jobs in the city provide opportunities for skill advancement and mobility into the middle-class for many New Yorkers and their families, as they pay, on average, \$52,000—well above annual median wages in the city's retail and restaurant sectors.

KEY CHALLENGE

Affordability and Suitability of Industrial Land and Space

New York City's small manufacturers face a host of land- and space-related challenges, with vacancy rates around the city consistently below 5 percent and full occupancy at some sites, such as the Brooklyn Navy Yard. The lack of affordable and suitable industrial space thus remains a major obstacle to manufacturing success in New York City. In 2009, there were

roughly 250 million square feet of industrial space in New York City, concentrated in the city's outer boroughs. These spaces, however, compete with a range of land-intensive uses—including utilities, warehouses, and subway yards—and contend with archaic and/or shifting zoning laws. The amount of physical space needed for production in New York City has drastically changed over the years, and manufacturers require smaller floorplates and different workspace arrangements than in the past. However, much of the city's existing industrial building stock has not been fitted to meet the needs of many manufacturing businesses and their workers. The loading spaces and warehousing options surrounding these buildings are also often inadequate.

LOCAL RESPONSES

1. BROOKLYN NAVY YARD (BNY)

The Brooklyn Navy Yard (BNY) provides a unique model for urban industry that successfully integrates cross-cutting land use, economic development and sustainability objectives. In 1964, after decades of deferred maintenance and falling employment, the BNY was abandoned by the federal government and turned over to New York City. During the 1970s, the site was occupied by a few tenants, but continued to suffer from poor maintenance, neglect, and disinvestment. The City eventually contracted with the Brooklyn Navy Yard Development Corporation (BNYDC), a newly formed mission-driven non-profit organization, to create and manage an industrial park on the city-owned land. In 2006, the City committed capital for much-needed infrastructure upgrades. Today, the Yard's 40 buildings are 99-percent leased and home to 275 industrial businesses employing nearly 6,000 workers, many of whom reside in the surrounding communities. An additional 1.7 million square feet of new space are presently in development.

As a landlord, BNYDC provides stable space and advanced infrastructure for its tenants, which include a wood-furniture manufacturer, paper-products producer, marine-products processor, lighting-fixture manufacturer, ceramics manufacturer, and custom-metal fabricator, among many others, with linkages across a range of local and regional industries. The Corporation has fostered an environment that supports private reinvestment in general and sustainable business practices. BNY charges market-rate rents, and public subsidies go into upgrading buildings and adapting spaces to the specific needs of smaller, agile manufacturers. This approach improves the long-term competitiveness of all BNY tenants—unlike reduced rents or subsidies for some. BNY also serves as a service provider for tenants; its employment service has placed over 1,000 people in jobs at the Yard and is now recruiting another non-profit organization to provide on-site training and wrap-around employment services.

While BNY originally drew attention as a land-use strategy for preserving affordable industrial space on New York City's waterfront, it has emerged as a model for the provision of sustainability services. BNY promotes itself to green companies and encourages existing tenants to adopt sustainable practices. The site offers state-of-the-art infrastructure to support sustainable business operations, including access to solar energy, LEED-certified buildings and assistance with financing. For example, BNY's LEED-certified Perry Building contains 90,000 square feet of modern, leasable space and provides rooftop-generated solar and wind power. Additional features include the use of recycled building materials, recycled rainwater in toilets, natural ventilation systems, and accommodations for low-emission vehicles and bicycles.

This community of like-minded, green manufacturers benefits from opportunities for shared learning about new technologies and processes; joint access to new markets; more efficient

waste and infrastructure management; a 'voice' in the city, through the BNYDC; and sustainability-centered business values.

2. GREENPOINT MANUFACTURING & DESIGN CENTER (GMDC)

The Greenpoint Manufacturing and Design Center (GMDC) is a Brooklyn-based, non-profit developer and landlord of industrial space. GMDC rehabilitates and restores industrial buildings for occupancy by small manufacturers in New York City, fitting and upgrading space for numerous tenants that employ hundreds of blue-collar workers. Past development projects include the gut renovation of a decayed, former marine-rope factory that underwent tax foreclosure in the 1970s, and GMDC's tenants include a metal spinner, lamp manufacturer, and several bakeries. As a developer, GMDC is on the cutting edge of adaptive reuse and sustainability practices and, as a landlord, the Center seeks to provide long-term, stable spaces for its tenants that are able to accommodate 21st-century operations.