

# **AN INDUSTRIAL LAND & MARKET STRATEGY FOR THE CITY OF PHILADELPHIA**

SEPTEMBER 2010

# TABLE OF CONTENTS

**EXECUTIVE SUMMARY..... iv**

**1 THE CURRENT STATE OF THE PHILADELPHIA INDUSTRIAL SECTOR..... 1**

**2 INDUSTRIAL MARKET DEMAND: THE FUTURE OF INDUSTRY IN PHILADELPHIA..... 7**

**3 INDUSTRIAL LAND SUPPLY: LAND USE AND REAL ESTATE..... 17**

**4 RECOMMENDATIONS: ENSURING PHILADELPHIA’S INDUSTRIAL FUTURE..... 57**

AN INDUSTRIAL MARKET AND LAND USE STRATEGY FOR THE CITY OF PHILADELPHIA  
SEPTEMBER 2010

PREPARED FOR  
PHILADELPHIA INDUSTRIAL DEVELOPMENT CORPORATION

IN COLLABORATION WITH  
PHILADELPHIA CITY PLANNING COMMISSION  
PHILADELPHIA DEPARTMENT OF COMMERCE

# LIST OF FIGURES

Figure 1: Industrial Employment by Subsector	3
Figure 2: Educational Attainment by Industry, Employed civilian workforce	4
Figure 3: Comp of 2007 Employment and Average Wages	4
Figure 4: Total Impacts from existing Industrial Jobs Philadelphia	5
Figure 5: Comparison of Total Economic Impacts- Industrial Sector and other Key Sectors	5
Figure 6: Summary of Industrial and Total Private Annual Taxes	6
Figure 7: Total Estimated Major Taxes Impact by Sector & Per Worker Estimated Major Taxes Impact	6
Figure 8: Target Clusters: Location Quotient & Industrial Opportunity	11
Figure 9: Twenty Year Land Demand	16
Figure 10: Summary of Industrial / Flex Market, Total Inventory by Size of Building & Buildings Over 100,000 SF By Year Built	20
Figure 11: Philadelphia Highway Infrastructure	23
Figure 12: Philadelphia Rail Infrastructure	24
Figure 13: Surveyed Philadelphia Industrial Districts	27
Figure 14: Industrial Area Characteristics	28
Figure 15: Surveyed Industrial Land Uses and Profile of the Southwest Industrial District	30
Figure 16: Surveyed Industrial Land Uses and Profile of the Grays Ferry Industrial District	31
Figure 17: Surveyed Industrial Land Uses and Profile of the South Delaware Industrial District	32
Figure 18: Surveyed Industrial Land Uses and Profile of the Callowhill Industrial District	34
Figure 19: Surveyed Industrial Land Uses and Profile of the Northern Liberties Industrial District	35
Figure 20: Surveyed Industrial Land Uses and Profile of the American Street Industrial District	36
Figure 21: Surveyed Industrial Land Uses and Profile of the Hunting Park West Industrial District	38
Figure 22: Surveyed Industrial Land Uses and Profile of the Hunting Park East Industrial District	39
Figure 23: Surveyed Industrial Land Uses and Profile of the Aramingo Industrial District	40
Figure 24: Surveyed Industrial Land Uses and Profile of the Upper North Delaware Industrial District	42
Figure 25: Surveyed Industrial Land Uses and Profile of the Lower North Delaware Industrial District	43
Figure 26: Surveyed Industrial Land Uses and Profile of the Northeast Industrial District	45
Figure 27: Surveyed Industrial Land Uses and Profile of the Lawncrest Industrial District	47
Figure 28: Surveyed Industrial Land Uses and Profile of the Parkside Industrial District	48
Figure 29: Surveyed Industrial Land Uses and Profile of the Roxborough Industrial District	49
Figure 30: Philadelphia's Large Industrial Parcels	50
Figure 31: Industrial Land Supply: Levels 1-3	52
Figure 32: Industrial Land Supply: Level 4	54
Figure 33: Market Pressures on Philadelphia's Industrial Districts and Corridors	56
Figure 34: Proposed Industrial Zoning	61
Figure 35: Land Use Policy Areas	63
Figure 36: Port Richmond Site Concept Plan and Economic & Fiscal Impacts	70
Figure 37: Lower Schuylkill Sites Concept Plan	72
Figure 38: Sunoco North Yard Assets & Economic & Fiscal Impacts	73

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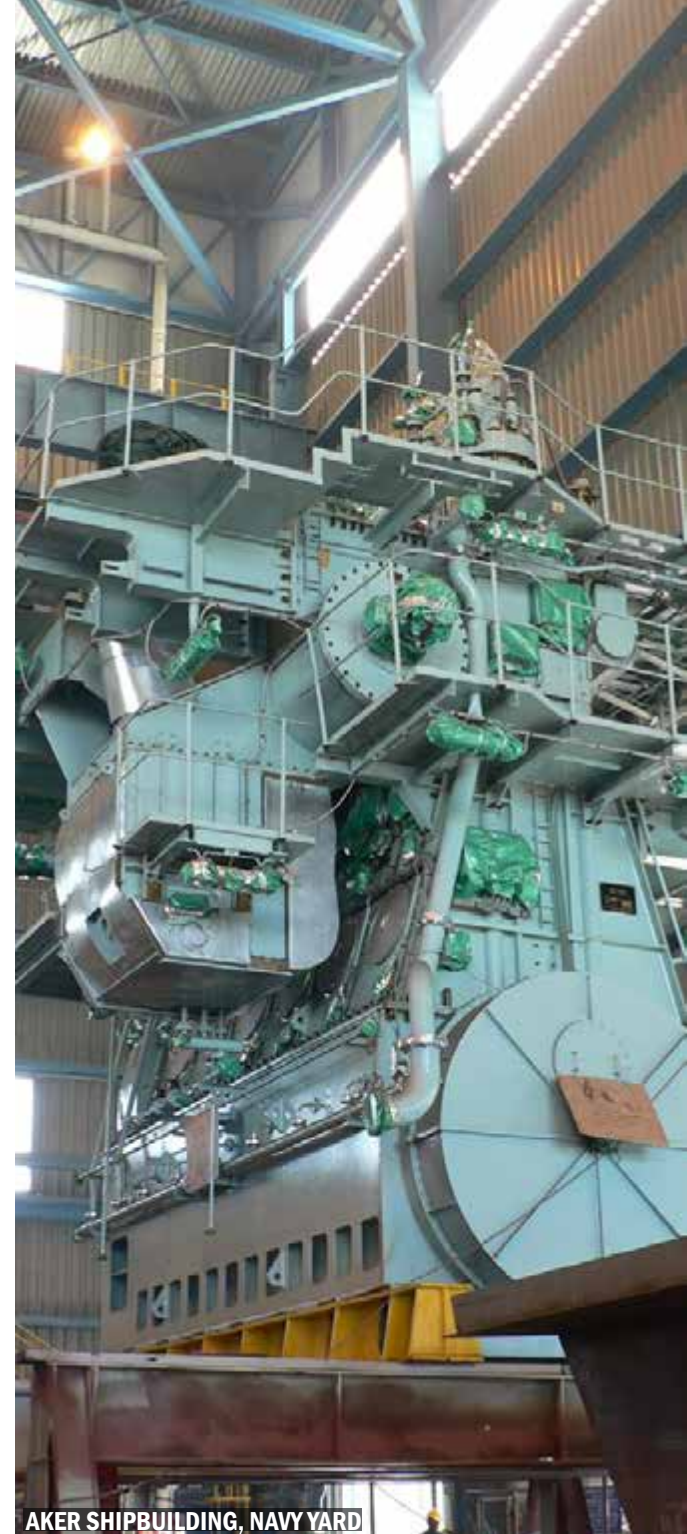
# EXECUTIVE SUMMARY

## INTRODUCTION

Philadelphia's long-term economic health depends in part on its ability to attract, accommodate, and retain industry as part of a balanced and diversified economy. Today, production, distribution, repair, and other industrial activities continue to be critical components of the City's economic base, accounting for over 100,000 jobs citywide and more than \$322 million annually in direct tax revenue to the City's coffers.

The long-term viability of industry in the City is dependent on the availability of sites and conditions that will encourage investment and allow industry to operate efficiently and profitably. Today, Philadelphia's inventory of marketable sites is both limited and constrained. Large tracts of industrial land have been rezoned and zoning variances have been granted in response to residential and commercial market pressure. With increased demand from non-industrial uses, building and land prices have increased, often pricing out industries that cannot afford to match the prices paid by residential or retail developers. At the same time, seismic shifts in the demand for industrial real estate have occurred over the past few decades; investors and users are driven to larger parcel sizes and flexible, newer one-story buildings, while smaller multi-floor, loft structures have become largely obsolete.

In light of recent efforts to update both the City's zoning code and comprehensive plan, constraints in the supply of Philadelphia's industrial land, changes in demand for industrial space and increasing pressure on industrially-zoned land from other uses represent a clear opportunity to provide policy direction for industrial land use in Philadelphia. To this end, the Philadelphia Industrial Development Corporation, with the support of the Philadelphia Department of Commerce and the Philadelphia City Planning Commission, has sponsored this study with the goals of expanding and retaining industry in the City, protecting the employment opportunities and tax revenues generated by the sector, and rationalizing the City's supply of industrially-zoned land to meet the projected needs of Philadelphia businesses.



AKER SHIPBUILDING, NAVY YARD



## AERIAL VIEW OF THE NAVY YARD

SOURCE: PICTOMETRY INTERNATIONAL 2009 AND CITY OF PHILADELPHIA

# THE CURRENT STATE OF THE PHILADELPHIA INDUSTRIAL SECTOR

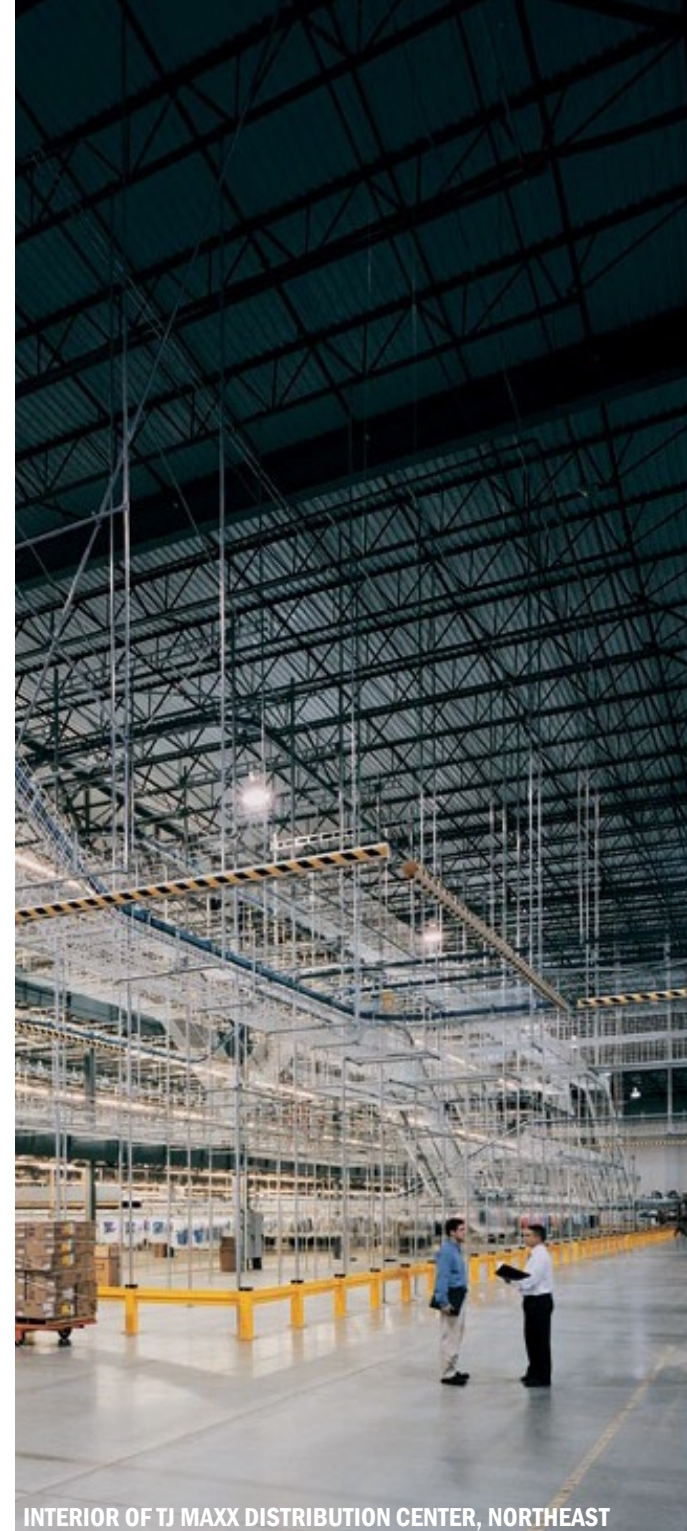
## MODERN INDUSTRY DEFINED - PRODUCTION, DISTRIBUTION AND REPAIR

The definition of industry has broadened since Philadelphia's days as the Workshop of the World. Due to a globalized competitive environment, domestic industrial activity today is as likely to involve the storage and transport of products on their way to the final consumer as it is manufacturing. *A modern definition of industry describes a range of activities centered on the production, distribution, and repair of goods and materials.* Several other cities that have completed similar studies have used the term "PDR" – production, distribution, and repair – rather than "industrial" to more accurately characterize a sector that can still conjure images of Victorian-era smokestack industry.

Modern productive industrial land may be occupied by laboratories, flex space, warehouses and distribution centers, or purpose-built manufacturing buildings. Concerns about energy costs and environmental impacts have increased demand for high-performance, low-impact sites and structures.

## PHILADELPHIA'S VIBRANT INDUSTRIAL ECONOMY

Philadelphia's industrial economy is vibrant, productive, and significant. From pharmaceutical testing at The Navy Yard to helicopter assembly in the Northeast, industrial jobs account for approximately *20 percent of the City's total employment* – 104,300 people. These jobs offer strong wages and range from highly-skilled, technical positions to entry-level apprenticeships and career-path positions for unskilled and semi-skilled workers. *The average wage in the sector is more than \$50,000*, a family-supporting living wage that typically includes a benefits package. Only 20 percent of Philadelphians have college degrees; for the large portion of the City's workforce that experiences barriers to employment due to low education levels, less specialized skills sets, language barriers, or lack of mobility, jobs in the industrial sector can offer a route out of poverty. The sector's annual payroll is over \$5 billion. It not only employs people directly in industrial businesses, but also supports employment and economic growth for Philadelphia's hospitals, universities, tourism, and other key economic sectors. The industrial sector contributes *more than \$322 million to the City's coffers* in direct taxes annually, amounting to nearly 15 percent of the City's annual tax revenue. A well-diversified citywide economy – one that includes a vibrant industrial sector – also dramatically enhances a city's ability to withstand economic crises.



INTERIOR OF TJ MAXX DISTRIBUTION CENTER, NORTHEAST



**AERIAL VIEW OF EASTWICK A INDUSTRIAL PARK IN SOUTHWEST PHILADELPHIA**

SOURCE: PICTOMETRY INTERNATIONAL 2009, THE CITY OF PHILADELPHIA



# INDUSTRIAL MARKET DEMAND: THE FUTURE OF INDUSTRY IN PHILADELPHIA

*With a focused strategy, Philadelphia has an opportunity to add 22,000 industrial jobs over the next 20 years*

## THE FOUNDATIONS & CHALLENGES OF THE INDUSTRIAL SECTOR

The City's economy was founded upon the port and those manufacturers who utilized the City's advantages as a center of rail and water transport. Today, Philadelphia's industrial advantages and attributes have shifted. Several strengths complement and support the industrial base, including:

- Local access to a workforce well suited for industrial employment
- Strong institutional assets in key sectors like education and health
- An advantageous location at the center of the Northeastern megaregion with regional access to a large consumer market
- A growing commercial and passenger airport within city limits with unusually close proximity

However, these strengths are balanced against several weaknesses that must be addressed going forward, including:

- Large inventory of poorly-situated and configured buildings not well suited for modern industrial users
- Generally low educational attainment for higher skilled industrial positions
- Job training focused on older industries and skills
- A relatively high cost structure

## MARKET OPPORTUNITIES FOR FUTURE INDUSTRIAL GROWTH

Philadelphia's unique attributes, as summarized above, provide a foundation for understanding the

City's regional and national competitiveness and its ability to target, attract, and retain specific industrial clusters and sectors. Clusters are geographically proximate groups of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities, and trade associations. In order to identify the clusters that could serve as engines for industrial employment in Philadelphia, Initiative for a Competitive Inner City (ICIC) analyzed the performance of 59 clusters currently present in Philadelphia. Weak and underperforming clusters were removed and subsequently, those clusters with the greatest opportunities for retention and attraction were aggregated into the final list of clusters and grouped as one of three super-clusters:

### TRADITIONAL MANUFACTURING

Apparel, Building Fixtures & Equipment, Construction Housing & Real Estate, Publishing & Printing, Processed Food and Metal Fabrication

### ADVANCED MANUFACTURING

Biopharmaceuticals, Energy, and Medical Devices

### TRANSPORTATION

Transportation and Wholesale

In all, the target clusters represent 64 percent of industrial employment in Philadelphia. If the City of Philadelphia develops and implements a focused strategy around traditional manufacturing, advanced manufacturing, and transportation and logistics, there is an opportunity to add nearly 22,000 industrial jobs in Philadelphia over the next twenty years. In order to accommodate these new jobs, the City of Philadelphia must identify 2,400 acres of land suitable for industrial development.



TASTY BAKING, THE NAVY YARD



**AERIAL VIEW OF FORMER BUDD COMPANY COMPLEX IN HUNTING PARK WEST**  
SOURCE: PICTOMETRY INTERNATIONAL 2009, THE CITY OF PHILADELPHIA

# INDUSTRIAL LAND SUPPLY: LAND USE & REAL ESTATE

*Philadelphia's current inventory of industrially-zoned land suitable for future development is limited and constrained – Philadelphia has only 2,445 acres, a figure that includes completely vacant land and buildings, partially vacant land and buildings, land available on the marketplace, and underutilized land.*

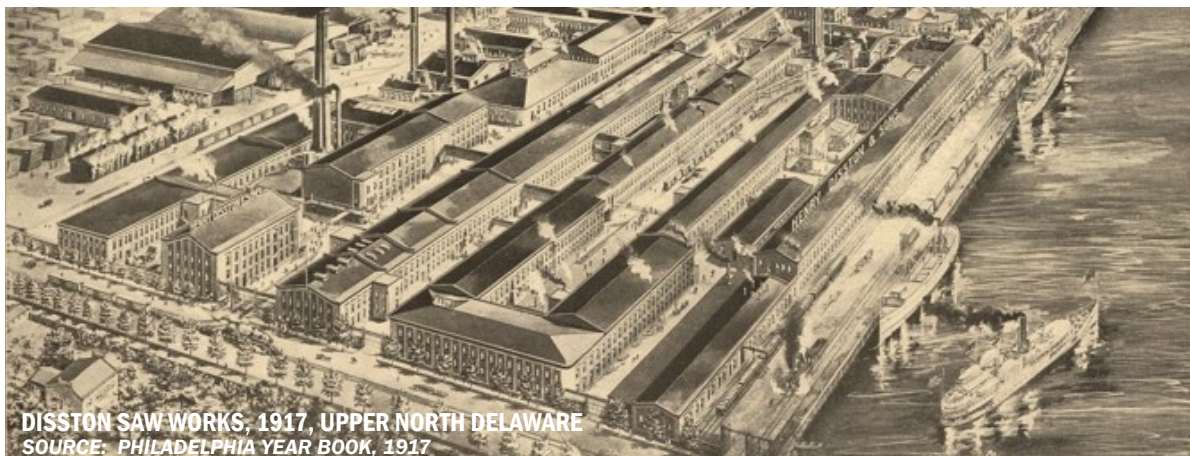
## HISTORIC PERSPECTIVE OF LAND & REAL ESTATE

In the late 1800's and the early 20th Century, multistory loft factories were built in tightly knit urban manufacturing corridors along the Delaware River waterfront and interior rail lines. The factories sparked the development of dense residential neighborhoods, from which a workforce arrived by foot or streetcar. Industrial processes in multistory buildings typically utilized “gravity-flow” production, whereby the manufacturing of an item began on the top floor, continued on lower floors, and was transported off site via the rail siding alongside the building.

The one-story industrial building typology was popularized by Henry Ford's 1913 introduction of the assembly line and, in subsequent decades, the emergence of truck transportation as the primary

means of transportation for both raw materials and finished goods. Industrial businesses increasingly found value in relocating from their urban lofts to one-story facilities built on inexpensive land with convenient road access, off-street truck staging, and employee parking. The growing demand for single-story facilities naturally favored suburban areas over older urban districts.

In 1958, the Philadelphia Industrial Development Corporation (PIDC) was formed to slow the migration of industrial companies to the suburbs. PIDC transformed undeveloped land around the City's periphery into suburban-style industrial parks, acquiring and transacting more than 2,600 acres over fifty years. Despite these efforts, the largely obsolete physical legacy of the Workshop of the World endures, lying visibly fallow along the Amtrak and regional rail corridors and perpetuating the falsehood that Philadelphia is a post-industrial city.



DISSTON SAW WORKS, 1917, UPPER NORTH DELAWARE  
SOURCE: PHILADELPHIA YEAR BOOK, 1917



ATWATER KENT RADIO FACTORY, 1925, HUNTING PARK WEST  
SOURCE: LIBRARY OF CONGRESS

# LAND AND REAL ESTATE REQUIREMENTS OF MODERN INDUSTRIAL BUSINESSES

The private real estate market categorizes modern tradable industrial structures into three product types:

## FLEX

The most common speculative industrial development, adaptable to the needs of a variety of industrial users, including ancillary office space

## PURPOSE BUILT MANUFACTURING

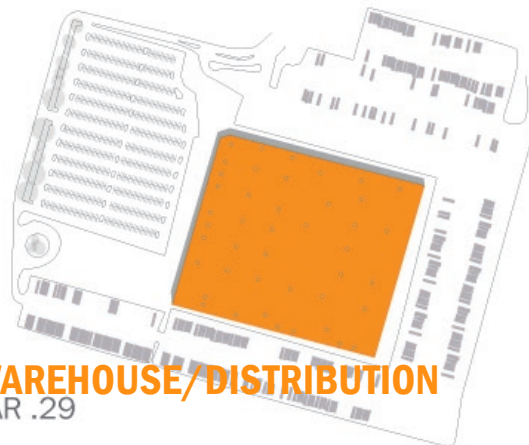
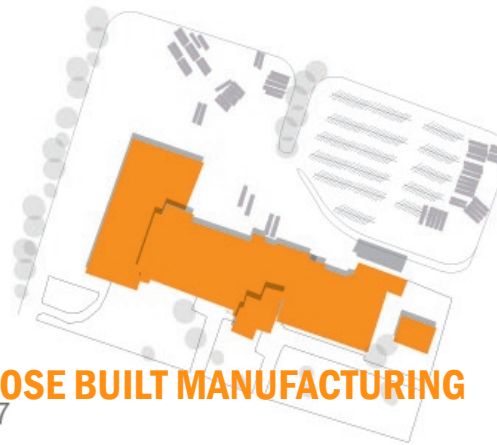
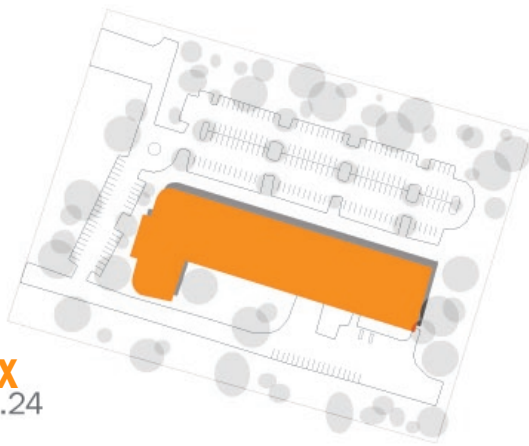
Structures designed to serve a specific manufacturing process

## WAREHOUSE/DISTRIBUTION

Used for the storage and distribution of goods

In addition to modern buildings, industrial businesses typically seek the following requirements:

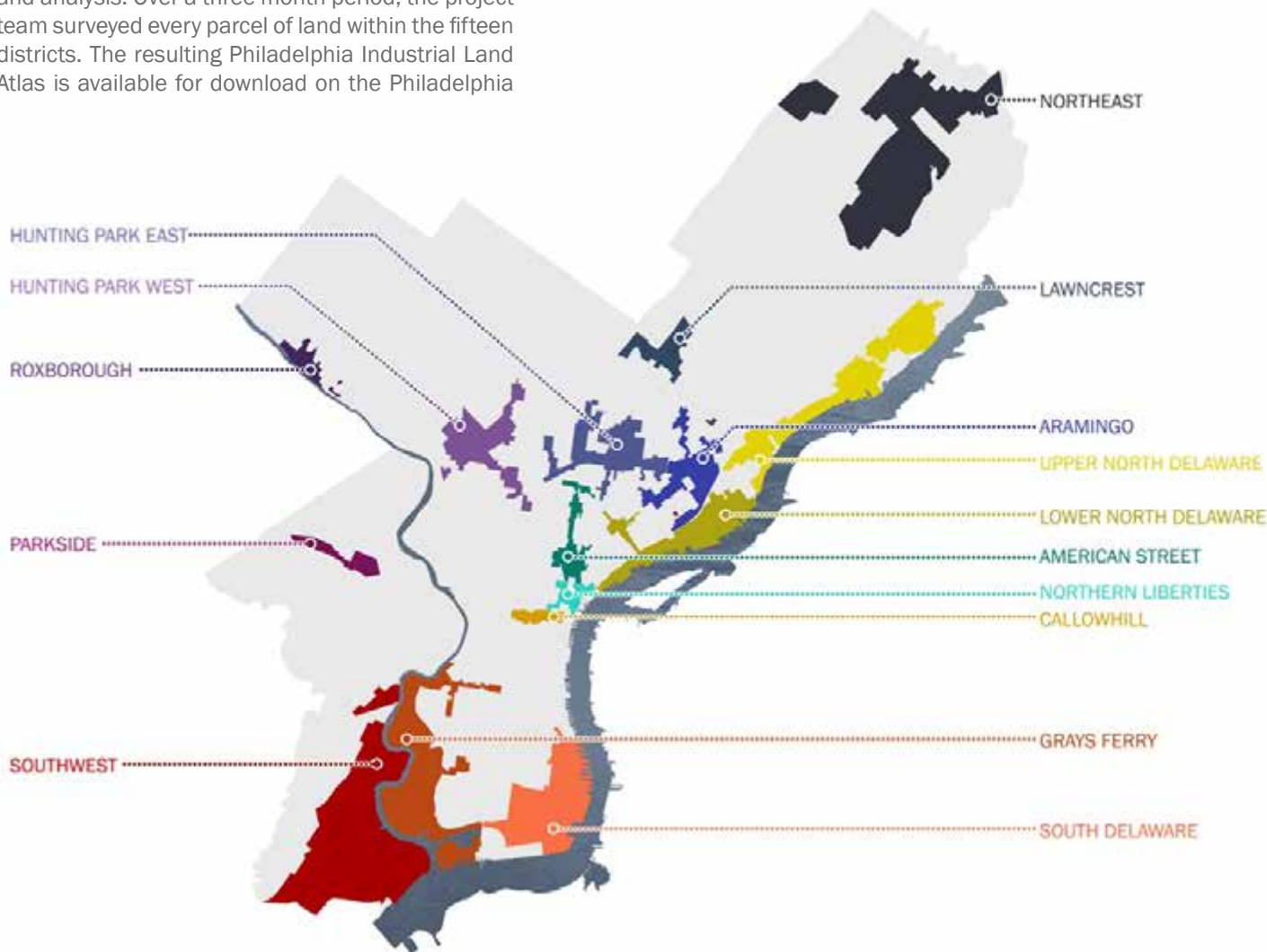
- > **LARGER PARCELS WITH DESIRABLE TOPOGRAPHY**  
Given truck staging, employee parking needs, and stormwater drainage requirements, new industrial development on sites smaller than five acres is rare. Flat sites with good drainage and soil characteristics are necessary for industrial development.
- > **INFRASTRUCTURE ACCESS**  
Proximity to major interstate highway systems is fundamental, since nearly all industrial users rely on trucking to receive shipments and to distribute goods. Access to freight rail service remains desirable, though most industrial users depend on it far less than trucking. Many industrial businesses also rely on proximity to ports and airports, depending on need.
- > **DISTANCE FROM RESIDENTIAL AREAS**  
Many industrial businesses seek sites where operations will be minimally intrusive to neighboring communities.
- > **WORKFORCE ACCESS**  
Labor-intensive users such as those that occupy flex buildings and manufacturing buildings seek locations that are convenient to an employment base.



# INDUSTRIAL DISTRICTS AND REAL ESTATE

Today, there are approximately 17,800 acres of industrially-zoned land in the City of Philadelphia, representing nearly 21% of the City's land area. For the purposes of this study, fifteen districts, totaling 15,804 acres, or 89% of Philadelphia's industrially-zoned land, were identified for survey and analysis. Over a three month period, the project team surveyed every parcel of land within the fifteen districts. The resulting Philadelphia Industrial Land Atlas is available for download on the Philadelphia

City Planning Commission website, at [www.philaplanning.org](http://www.philaplanning.org). The Atlas compiles, maps and analyzes information from land use and zoning to vacancy and employment for each of Philadelphia's fifteen surveyed industrial districts.



PHILADELPHIA'S 15 SURVEYED INDUSTRIAL DISTRICTS



HUNTING PARK WEST INDUSTRIAL LAND ATLAS MAPS

The districts span the City of Philadelphia, from the International Airport in the Southwest to the far Northeast, varying widely in size, character, degree of utilization, density, scale, and surrounding uses. However, there are many similarities among various districts with regard to the opportunities and challenges presented by their geographies, development patterns, access and infrastructure. Six groupings, as seen in the graphic at right, allow the districts to be considered at a broader, more functional scale within the context of city and region.

The private real estate market recognizes more than 118 million square feet of industrial space in approximately 2,200 buildings in the City of Philadelphia. The Philadelphia Metropolitan Statistical Area has more than four times the City's total inventory, reflecting not only the massive suburban shift over the last 40 years, but also the fact that Philadelphia is at the center of a vibrant industrial marketplace.

### NORTHEAST SUBURBAN

- \*stable land values
- \*campuses make better neighbors
- \*proximity to diverse labor pool
- \*higher costs, but only marginally higher benefits compared to suburbs
- \*local firm noted deficient sewer capacity
- \*isolated from central city and transit

### DELAWARE WATERFRONT

- \*I-95 adjacent (& buffers resd'l areas)
- \*several large, vacant parcels remain
- \*astride major utility infrastructure
- \*neighborhoods desire river access
- \*development pressure on land values
- \*numerous choke points coming off I-95

### NORTH PHILADELPHIA URBAN

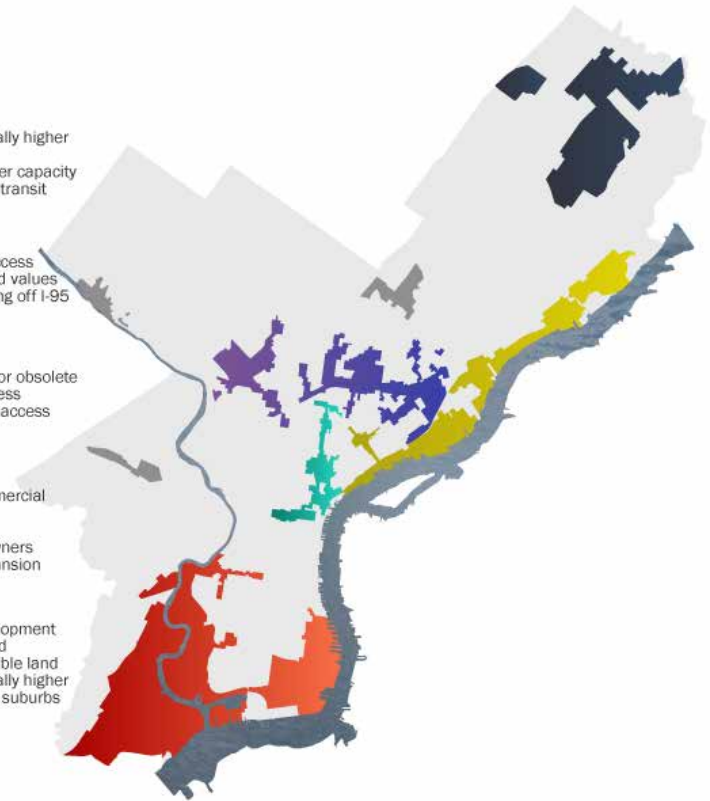
- \*proximity to diverse labor pool
- \*strong legacy of industrial associations
- \*lower industrial rents and land values
- \*bldgs often in poor condition or obsolete
- \*limited parking and truck access
- \*high crime & indirect freeway access

### PHILADELPHIA INNER URBAN

- \*small, low-rent spaces + proximity = hotbed of workshop / artisanal
- \*uniquely close-in industrial property to Center City
- \*increasing residential & commercial pressure
- \*truck circulation difficult
- \*small parcels and multiple owners hinder land assembly and expansion

### SOUTH BY SOUTHWEST WATERFRONT

- \*excellent access: airport, port, freeways
- \*revitalizing node @ Navy Yard
- \*historically industrial land use & development patterns
- \*big box and commercial development eroding available industrial land
- \*much fill or otherwise unsuitable land
- \*higher costs, but only marginally higher benefits compared to adjacent suburbs



	PARCELS	ACRES	DISTRICT SHARE	AVG INDUSTRIAL PARCEL SIZE (ALL)	50+ ACRE PARCELS	50+ ACRE PARCELS (% OF TOTAL)	AVG INDUSTRIAL BUILDING SIZE (FT <sup>2</sup> )	AVG INDUSTRIAL BUILDING AGE
<b>NORTHEAST SUBURBAN</b>	<b>420</b>	<b>3,390</b>	<b>21%</b>	<b>11.0</b>	<b>7</b>	<b>38%</b>	<b>78,792</b>	<b>1986</b>
Northeast	420	3,390	21%	11.0	7	38%	78,277	1986
<b>DELAWARE WATERFRONT</b>	<b>1,451</b>	<b>2,361</b>	<b>15%</b>	<b>4.6</b>	<b>10</b>	<b>36%</b>	<b>35,930</b>	<b>1954</b>
Upper North Delaware	732	1,413	9%	3.3	7	32%	44,000	1958
Lower North Delaware	719	948	6%	5.8	3	42%	27,860	1950
<b>NORTH PHILADELPHIA URBAN</b>	<b>6,660</b>	<b>2,074</b>	<b>12%</b>	<b>2.2</b>	<b>2</b>	<b>6%</b>	<b>48,381</b>	<b>1947</b>
Aramingo	2,757	545	3%	1.2	0	0%	29,324	1939
Hunting Park East	2,760	821	5%	1.8	0	0%	44,430	1949
Hunting Park West	1,143	708	4%	3.5	2	17%	71,389	1953
<b>PHILADELPHIA INNER URBAN</b>	<b>4,924</b>	<b>480</b>	<b>4%</b>	<b>0.4</b>	<b>0</b>	<b>0%</b>	<b>17,952</b>	<b>1930</b>
American Street	3,242	253	2%	0.4	0	0%	17,174	1938
Northern Liberties	1,338	113	1%	0.2	0	0%	15,388	1926
Callowhill	344	115	1%	0.5	0	0%	21,294	1926
<b>SOUTH BY SOUTHWEST WATERFRONT</b>	<b>2,104</b>	<b>6,755</b>	<b>43%</b>	<b>14.6</b>	<b>25</b>	<b>59%</b>	<b>80,428</b>	<b>1959</b>
South Delaware	143	1,661	11%	10.9	8	55%	99,904	1974
Grays Ferry	1,428	1,946	12%	13.0	7	72%	72,675	1945
Southwest	533	3,148	20%	20.0	10	54%	68,706	1985*
<b>OTHER</b>	<b>554</b>	<b>744</b>	<b>4%</b>	<b>7.0</b>	<b>2</b>	<b>28%</b>	<b>88,812</b>	<b>1950</b>
Lawncrest	181	380	2%	16.2	2	55%	188,868	1952*
Parkside	290	186	1%	1.3	0	0%	23,610	1950
Roxborough	83	177	1%	3.6	0	0%	53,957	1952*
<b>ALL DISTRICTS</b>	<b>16,113</b>	<b>15,804</b>	<b>100%</b>	<b>5.0</b>	<b>46</b>	<b>41%</b>	<b>47,576</b>	<b>1950</b>

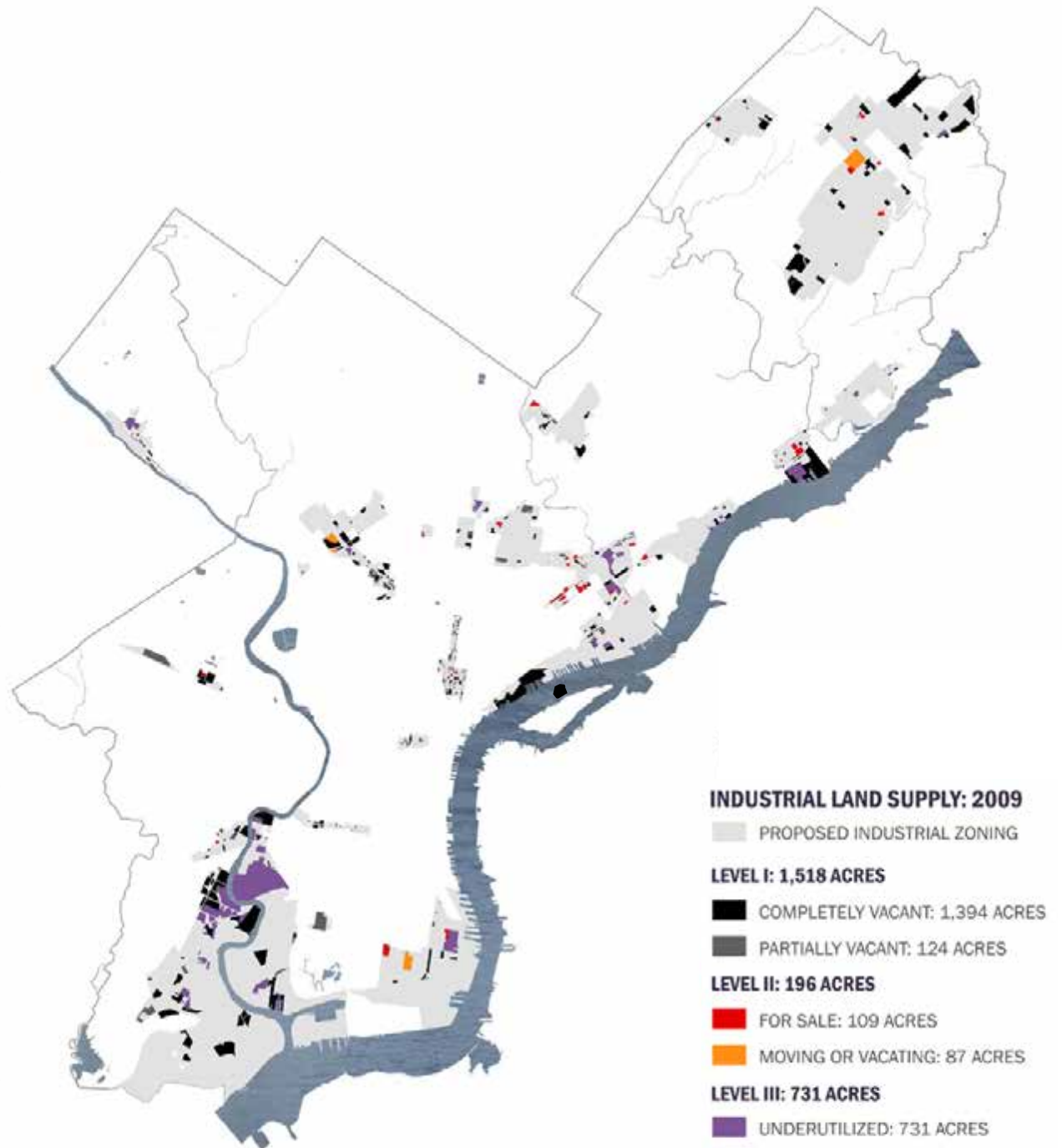
## PHILADELPHIA INDUSTRIAL DISTRICTS:

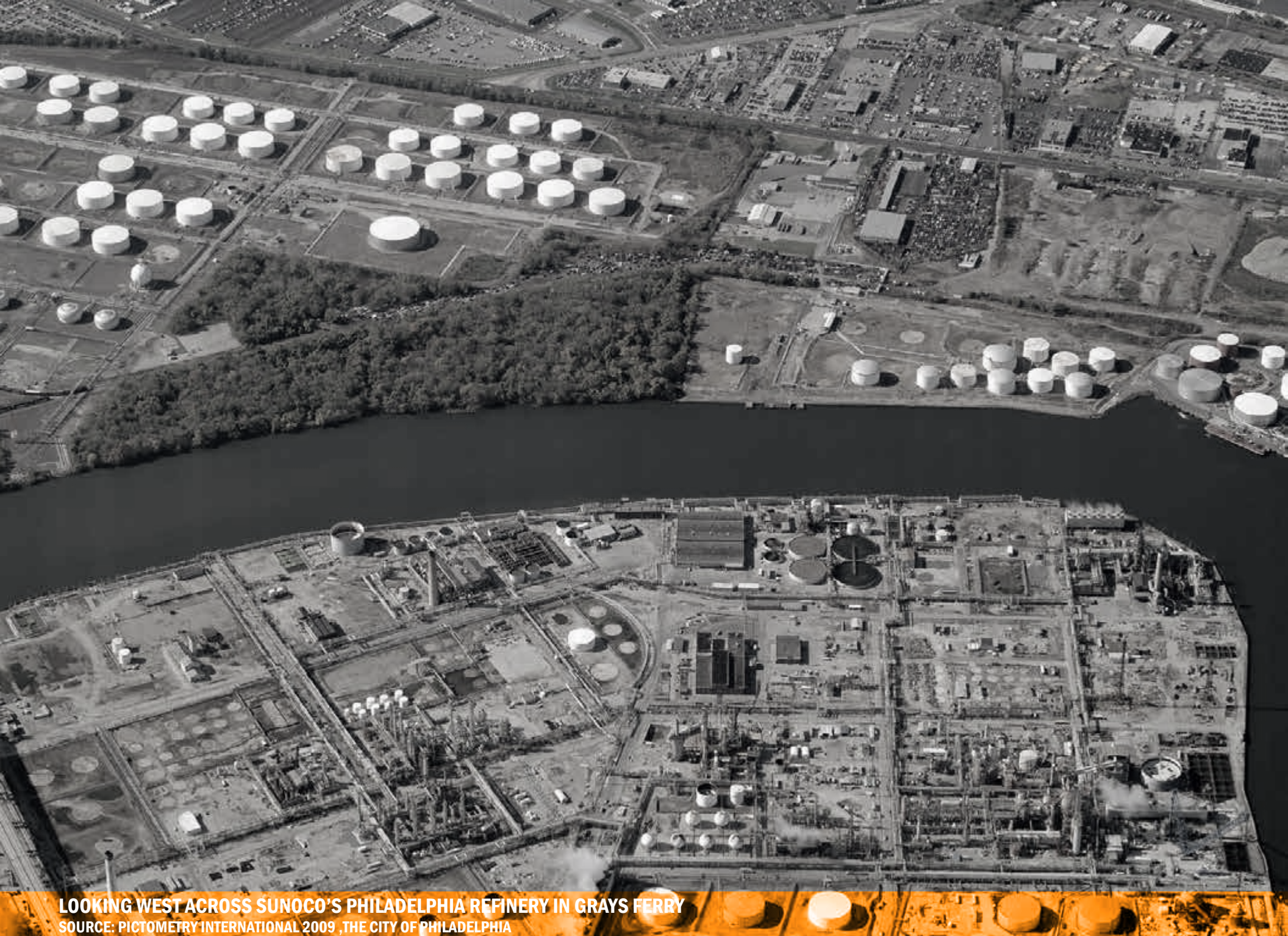
## LAND OPPORTUNITIES FOR FUTURE INDUSTRIAL EXPANSION

Philadelphia's inventory of industrial land for future development is both limited and constrained. The survey identified 2,445 acres of land suitable for future development within Philadelphia's fifteen industrial districts. This figure includes completely vacant land and buildings (1,394 acres), partially vacant land and buildings (124 acres), land available in the marketplace (196 acres), and underutilized land (731 acres). As previously mentioned, we project that Philadelphia will need approximately 2,400 acres of land for future industrial development to accommodate 22,000 new jobs in Philadelphia over the next twenty years. Of course, over time, existing industrial sites will turn over naturally, as factories in good locations age and the sites also become available for redevelopment.

It is important to note that, while land that is suitable for future industrial development exists within Philadelphia, the vast majority of that land is far from shovel-ready. Many areas will need significant infrastructure improvements and extensive environmental remediation. Other areas are tied up because of zoning uncertainty. In order for new industrial development to occur, the market must know that zoning designations are definitive. For example, a waterfront site may have been acquired at an industrial price of \$125,000/acre, but has the potential to be traded at \$300,000-500,000/acre for housing, \$500,000-600,000/acre for retail, or \$1-3 million/acre for a casino should a zoning change occur; the property's viability for future industrial development is compromised because the land owner will hold out for the higher values afforded by commercial zoning. Public intervention is necessary to create zoning certainty and provide catalytic infrastructure improvements or environmental clean-up that stimulate investment.

The goal of these public interventions is to position industrial real estate so that it has the attributes necessary to attract private investment in modern, investment-grade flexible industrial facilities that will be responsive to market demands and ultimately retain their utility and value over time. This represents a shift from Philadelphia's long tradition of purpose-built manufacturing that becomes obsolete due to its limited utility for alternate industrial uses.





**LOOKING WEST ACROSS SUNOCO'S PHILADELPHIA REFINERY IN GRAYS FERRY**  
SOURCE: PICTOMETRY INTERNATIONAL 2009, THE CITY OF PHILADELPHIA





# RECOMMENDATIONS: PLANNING FOR PHILADELPHIA'S INDUSTRIAL FUTURE

*Three broad areas of recommendations were developed aimed at accommodating clean, modern industrial growth in Philadelphia:*

- 1. Zoning for Modern Industry***
- 2. Positioning Industrial Land for Investment***
- 3. Additional Strategies for Retaining & Expanding Industry***

## ZONING FOR MODERN INDUSTRY

Philadelphia's current zoning code is based on 1960's land use patterns, which themselves were a legacy of an antiquated industrial economy. The land uses permitted by the City's current industrial zoning do not account for a modern range of low-impact, high-performance, or mixed-use industrial development. The ongoing work of the Zoning Code Commission and the comprehensive planning process provides Philadelphia with a unique opportunity to formally rationalize its supply of industrial land while updating its classifications to represent twenty-first century patterns of urban industry.

We propose that the ten industrial zoning classifications in Philadelphia's current code should be consolidated into four classifications. The four classifications include a utilities and transportation infrastructure category that would separate critical long-term public infrastructure from private market industrial activity. The remaining three industrial zones classifications include heavy industrial, general industrial, and light industrial.

In addition, two new mixed-use classifications are proposed, reflecting Philadelphia's fine-grained texture and cognizant that, in many places, low-impact industrial uses may intermingle with commercial and residential uses.

## RECOMMENDED ZONING TYPOLOGIES

### HEAVY INDUSTRIAL

- USES** Least restrictive - refineries, petroleum tanks & terminals
- CHARACTER** LOW FAR.  
Tanks, pipelines, secure areas
- IMPACTS** Most permissive - high noise, odor, vibration, traffic

### GENERAL INDUSTRIAL

- USES** Manufacturing, distribution, processing, industrial park
- CHARACTER** MID FAR.  
Mid to large footprint, well-buffered
- IMPACTS** Permissive - noise, vibration, odor, hours, traffic

### LIGHT INDUSTRIAL

- USES** Light manufacturing, assembly, artisanal fabrication, office, R&D, small wholesale, local distribution
- CHARACTER** SMALL FAR.  
Mid footprint, subdivision of buildings, business / industrial park, workshop; some buffering
- IMPACTS** Localized noise, traffic, activity

### INDUSTRIAL COMMERCIAL MIXED USE

- USES** Commercially-driven mix of locally-serving quasi-industrial (eg, food wholesale, local fabrication & repair, construction supply), and commercial
- CHARACTER** VARIETY IN SCALE & USE.  
Typically smaller footprint, located along commercial corridors
- IMPACTS** Localized noise, traffic, activity

### INDUSTRIAL RESIDENTIAL MIXED USE

- USES** Artisanal, creative, workshop, small mfg. & fabrication compatible w/ traditional neighborhoods - residential conversion limited
- CHARACTER** SMALL SCALE.  
Flexible - often adaptive use of existing building stock, garage, workshop
- IMPACTS** Minimal

### UTILITIES & TRANSPORTATION

- USES** Power generation, water, waste treatment; rail yards, ports, airports
- CHARACTER** VARIES.  
Form follows function
- IMPACTS** Fixed impacts - includes odor, traffic, noise, high activity

# POSITIONING INDUSTRIAL LAND FOR INVESTMENT

In addition to updated zoning classifications, industrially-zoned land should be managed with three distinct but complementary industrial policy typologies – Industrial Protection Areas, Industrial Intensification Areas, and Transitioning Areas.

## INDUSTRIAL PROTECTION AREAS

The City has many vibrant, employment-rich industrial districts and corridors. Such areas should be protected and receive regulatory support and market certainty that land use policy will remain industrial. In such cases, Industrial Protection Areas (IPAs) should be created in order to reinforce such areas. The study recommends 4,241 acres for IPA designation. An IPA should:

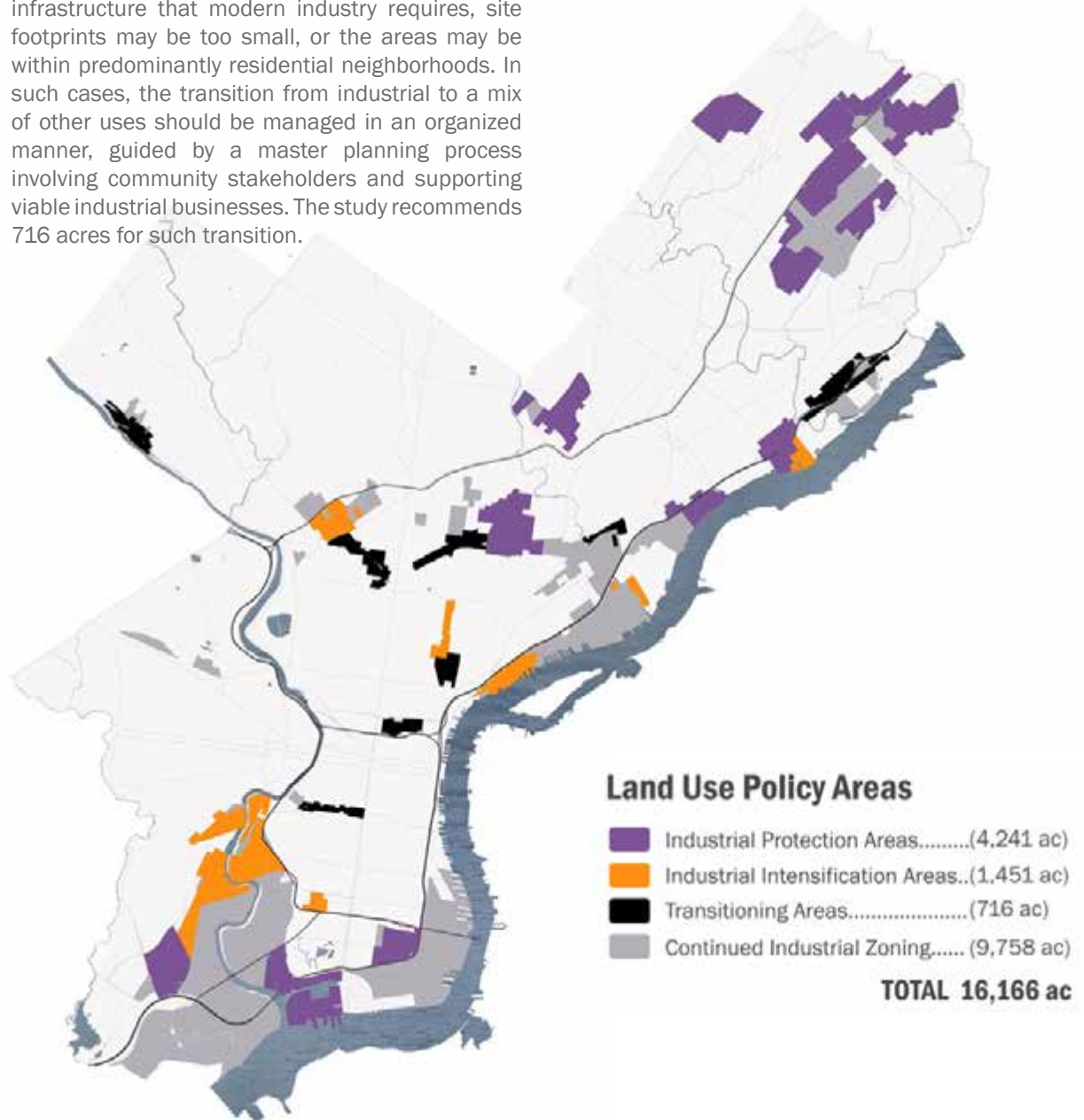
- > Prohibit future non-industrial uses by providing regulatory certainty, restricting spot zoning changes or variances in the future
- > Identify and coordinate capital and infrastructure needs necessary to ensure long-term economic viability for industrial users
- > Provide strong enforcement to disallow land uses inconsistent with industry

## INDUSTRIAL INTENSIFICATION AREAS

There are at least 1,451 acres within existing industrial districts that have the potential to accommodate more dense and productive industrial uses industry. In addition to creating zoning certainty within these Intensification Areas, the public sector should invest in significant planned infrastructure improvements and environmental remediation in order to encourage private investment and job creation. Additionally, these areas should undergo master planning processes to determine the appropriate niche cluster segments; detailed marketing and redevelopment plans should be directed accordingly.

## TRANSITIONING AREAS

*A portion of Philadelphia's industrially-zoned land is not suitable for continued industrial use.* Many facilities within Philadelphia's industrial districts are only marginally viable for modern industry, or are most suitable for smaller, niche industrial activity. These areas may lack the transportation infrastructure that modern industry requires, site footprints may be too small, or the areas may be within predominantly residential neighborhoods. In such cases, the transition from industrial to a mix of other uses should be managed in an organized manner, guided by a master planning process involving community stakeholders and supporting viable industrial businesses. The study recommends 716 acres for such transition.





To demonstrate the opportunity costs of allowing proposed Industrial Intensification Areas to lie fallow, the consultant team was asked to develop conceptual studies of how two key locations might be better positioned for industrial development. These concepts have not been endorsed by the owners.

The Port Richmond railyard site includes 122 acres along the Delaware River and includes vacant Conrail lands and an adjacent vacant property to the South. The site is one of the largest contiguous industrial development sites in the City. A conceptual industrial campus plan demonstrates that the site could support 1.1 million square feet

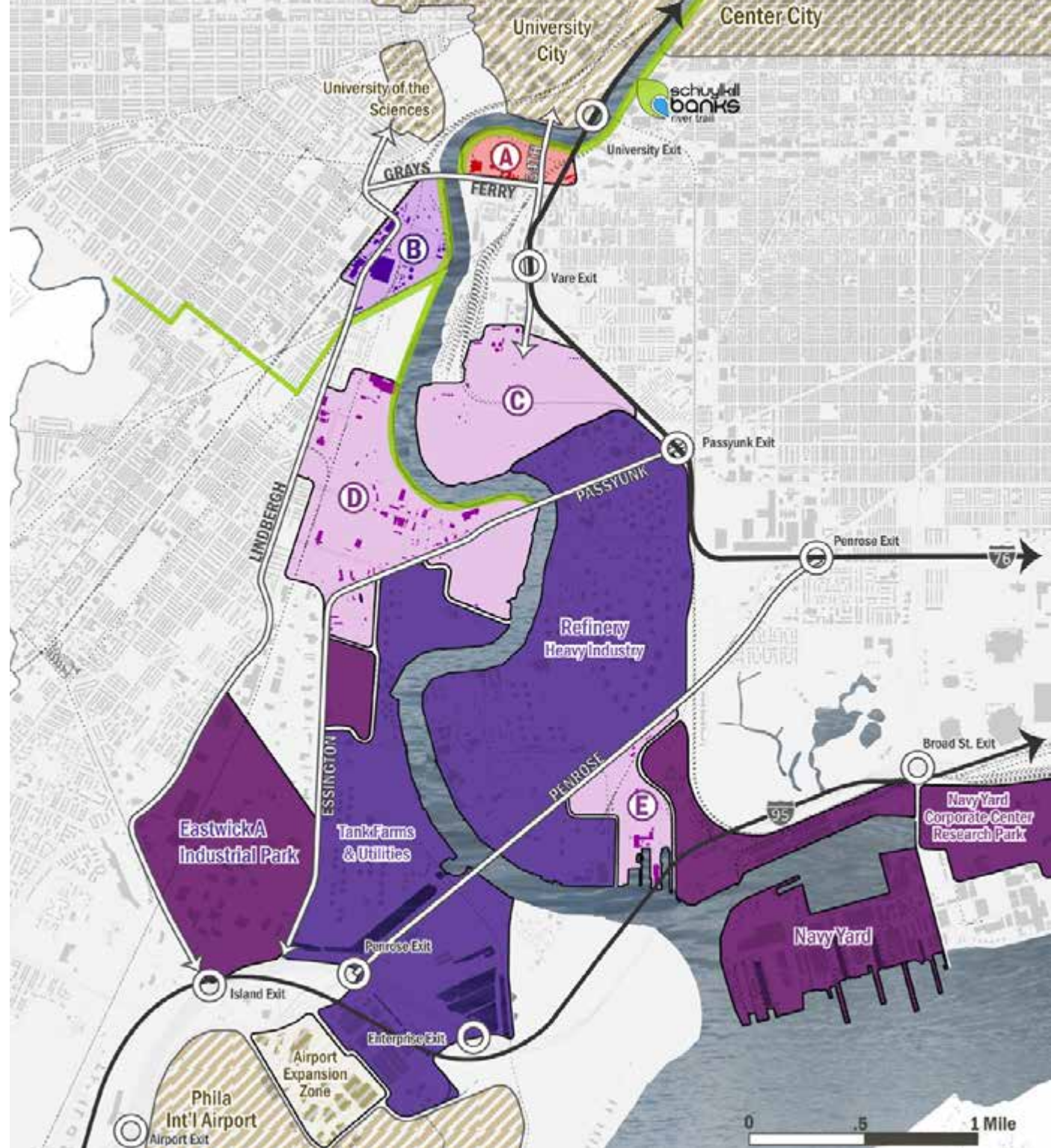
of manufacturing, warehouse/distribution, and flex space, *accommodating 2,300 new jobs, \$99 million annually in payroll, and nearly \$10 million annually in tax revenue to the City.* The concept plan includes a 100' setback to allow continuous waterfront trail and public space linked to the rest of the Central Delaware, a progressive approach to stormwater management, and a mix of building types and industrial activities that respond to available infrastructure. Because of its size and location, this site may reasonably support other uses including retail and commercial, however, this concept is intended to illustrate the benefits of redeveloping large, contiguous urban industrial areas.



Additionally, the consultant team developed a conceptual vision for underutilized tracts of land located along the lower Schuylkill River. This area represents a tremendous opportunity for new industrial growth from research and development as well as distribution, given its easy access to I-95 and I-76 and close proximity to Center City and University City, Philadelphia International Airport, the Navy Yard, and freight rail. While the overall area represents tremendous opportunities for repositioning for industrial growth, the 254-acre Sunoco North Yard alone, marked "C" in the diagram at right, has the potential to support nearly 3 million square feet of manufacturing, warehouse/distribution, and flex space, *accommodating 3,700 new jobs, \$170 million annually in payroll, and nearly \$17 million annually in tax revenue to the City.*

Both sites would require significant planning for new access, infrastructure, and market positioning, similar to successful large-scale industrial development undertaken by the City of Philadelphia and PIDC at the Navy Yard and in Northeast Philadelphia, on sites adjacent to the Northeast Philadelphia Airport.

- A DUPONT CRESCENT**  
 TIME TO UNIVERSITY CITY: 4 MINUTES  
 TIME TO PHL AIRPORT: 10 MINUTES  
 OPPORTUNITY: RESEARCH/MIXED-USE  
 52 ACRES
- B BOTANIC AVENUE**  
 TIME TO UNIVERSITY CITY: 6 MINUTES  
 TIME TO PHL AIRPORT: 12 MINUTES  
 OPPORTUNITY: ADVANCED MANUFACTURING  
 46 ACRES
- C SUNOCO NORTH YARD**  
 TIME TO UNIVERSITY CITY: 9 MINUTES  
 TIME TO PHL AIRPORT: 11 MINUTES  
 OPPORTUNITY: PRODUCTION/DISTRIBUTION  
 254 ACRES
- D EASTWICK B**  
 TIME TO UNIVERSITY CITY: 8 MINUTES  
 TIME TO PHL AIRPORT: 9 MINUTES  
 OPPORTUNITY: PRODUCTION/DISTRIBUTION  
 363 ACRES
- E NAVY YARD EXPANSION**  
 TIME TO UNIVERSITY CITY: 15 MINUTES  
 TIME TO PHL AIRPORT: 5 MINUTES  
 OPPORTUNITY: PRODUCTION/DISTRIBUTION  
 102 ACRES



## **ADDITIONAL STRATEGIES FOR RETAINING AND EXPANDING INDUSTRY**

In addition to the land use policies outlined above, several other initiatives should be considered in order to sustain long-term industrial development in Philadelphia:

### **LEVERAGE STRENGTHS FOR ADVANCED MANUFACTURING**

Given Philadelphia's wealth of universities and research hospitals and the key role they play in the City and regional economy, one important opportunity for growth is to better connect these assets to the industrial base. These anchor institutions can also serve as the foundation for diversifying the range of advanced industrial sectors represented in the City. Opportunities range from support for technology commercialization in early stage companies to significant infrastructure investment to create the physical environment required to support large advanced manufacturers.

### **"GREEN" INDUSTRY**

Sustainability should be the focus of industrial business development strategies. The demand for new products aimed at improving energy efficiency, providing cleaner energy sources, and better managing the storage and distribution of energy will likely be the key driver of industrial demand in the coming decades. The U.S. Department of Energy's designation of an Energy Innovation Hub at The Navy Yard's Clean Energy Campus presents an opportunity for Philadelphia to play a leading role in the emergence of the sustainable energy sector in the U.S., and in particular in connecting research and development in the sector with the manufacture and distribution of end products and technologies.

Building on the City's GreenWorks plan, greening goals should be developed for industry, relating to power consumption and production and incorporation of sustainable features into facility development and operation. These goals and related programs, designed to support and encourage sustainable development, will reduce industrial companies' operating costs over time, provide a market for locally-made sustainable industrial products, and position industrial firms in Philadelphia to effectively compete in this sector as it grows.

### **CONTINUE SUPPORT OF TRADITIONAL MANUFACTURING**

Given its significance as an employment base and Philadelphia's comparative advantages within the US economy, the City and its related economic development entities will need to continue to support the traditional industrial base.

### **DEVELOP THE WORKFORCE**

While working to increase Citywide educational attainment, the City and its related workforce development entities will need to place a strong emphasis on STEM (Science, Technology, Engineering and Mathematics) education in order to increase Philadelphia's pool of skilled industrial labor necessary to expand the City's presence in advanced in manufacturing.

### **MARKET AND ADVOCATE FOR INDUSTRY**

An overall marketing strategy should focus on industrial development in the City, highlighting success stories, opportunities, available sites, and incentive programs.



**AERIAL VIEW OF MARSHALLS/TJ MAXX DISTRIBUTION CENTER**  
SOURCE: PICTOMETRY INTERNATIONAL 2009, THE CITY OF PHILADELPHIA

# THE CURRENT STATE OF THE PHILADELPHIA INDUSTRIAL SECTOR

Philadelphia's industrial economy is vibrant, productive, and significant. From pharmaceutical testing at The Navy Yard to helicopter assembly in the Northeast, industrial jobs account for approximately *20 percent of the City's total employment* – 104,300 people. These jobs offer strong wages and range from highly-skilled, technical positions to entry-level apprenticeships and career-path positions for unskilled and semi-skilled workers. *The average wage in the sector is more than \$50,000*, a family-supporting living wage that typically includes a benefits package.

Only 20 percent of Philadelphians have college degrees; for the large portion of the city's workforce that experiences barriers to employment due to low education levels, less specialized skills sets, language barriers, or lack of mobility, jobs in the industrial sector are a path to economic advancement. The sector's annual payroll is over \$5 billion. It not only employs people directly in industrial businesses, but also supports employment and economic growth for Philadelphia's hospitals, universities, tourism, and other key economic sectors.

The industrial sector contributes *more than \$322 million to the City's coffers* in direct taxes annually, amounting to nearly 15 percent of the City's annual tax revenue. As the current economic climate has made clear, a well-diversified citywide economy – one that includes a vibrant industrial sector – also dramatically enhances a city's ability to withstand economic crises.

## MODERN INDUSTRY DEFINED – PRODUCTION, DISTRIBUTION, AND REPAIR

The definition of industry has broadened since Philadelphia's days as the Workshop of the World. Due to a globalized competitive environment, domestic industrial activity today is more likely to involve the storage and transport of products on their way to the final consumer than it is manufacturing. *A modern definition of industry describes a range of activities centered on the production, distribution, and repair of goods and materials.* Several other cities that have completed similar studies have used the term “PDR” – production, distribution, and repair – rather than “industrial” to more accurately characterize a sector that can still conjure images of Victorian-era smokestack industry.

Modern productive industrial land may be occupied by laboratories, flex space, warehouses and distribution centers, or purpose-built manufacturing buildings. Concerns about energy costs and environmental impacts have increased demand for high-performance, low-impact sites and structures.

## INDUSTRIAL EMPLOYMENT & WAGES

The industrial sector accounts for 104,300 jobs, approximately 20 percent of Philadelphia's total employment, as shown in the Figure 1. Unlike single-industry factory towns of New England and the mid-west, Philadelphia has long been a city characterized by a great diversity of small and mid-sized industries – producing everything from Stetson hats to Baldwin locomotives.

This diversity is reflected in Figure 1; no one segment singularly dominates Philadelphia's industrial employment base. Air transportation accounts for 7,591 jobs, the sector's largest subset, due primarily to employment relating to Philadelphia International Airport. Specialty trade contractors employ 7,238 jobs, driven by construction and rehabilitation activity in the city and region. The next largest subsectors are wholesale trade of nondurable goods and of durable goods, accounting for 7,163 and 6,983 jobs, respectively, and taking advantage of Philadelphia's access to consumer markets. Within the city, 5,382 work in food processing, including cookie baking at the Kraft plant on Roosevelt Boulevard in Northeast Philadelphia and those coffee roasting at La Colombe Torrefaction's facility in Port Richmond.

As mentioned, manufacturing is considered one segment of a broader industrial sector; today, Philadelphia has 28,397 manufacturing jobs. Given the diversity of the sector, industrial jobs employ a wide range of Philadelphians, from highly-skilled, technical positions to entry-level apprenticeships and career-path positions for the unskilled. A wide range of employment opportunities requires a wide range of skills and education levels. Sector-wide, the average wage is nearly \$50,000. Table 1 also displays industrial wages in Philadelphia, demonstrating the diversity of skills required and wages paid by the sector.

Figure 1: Industrial Employment by Subsector  
Source: ICIC

### Industrial Employment By Subsector

NAICS CODE	INDUSTRY DESCRIPTION	2007 EMPLOYMENT	SHARE OF INDUSTRIAL EMPLOYMENT	SHARE OF TOTAL EMPLOYMENT	2007 AVERAGE WAGE
<b>AGRICULTURE, FORESTRY, FISHING &amp; HUNTING</b>					
11	Agriculture, Forestry, Fishing & Hunting	6	0.0%	0.0%	
<b>UTILITIES</b>					
221	Utilities	1,138	1.1%	0.2%	\$118,166
<b>CONSTRUCTION</b>					
236	Construction of Buildings	3,077	3.0%	0.6%	\$66,339
237	Heavy & Civil Engineering Construction	1,237	1.2%	0.2%	\$64,652
238	Specialty Trade Contractors	7,238	6.9%	1.4%	\$62,843
<b>MANUFACTURING</b>					
311	Food	5,382	5.2%	1.0%	\$45,258
312	Beverage & Tobacco Product	610	0.6%	0.1%	\$56,843
313	Textile Mills	374	0.4%	0.1%	\$31,830
314	Textile Product Mills	438	0.4%	0.1%	\$38,414
315	Apparel	1,731	1.7%	0.3%	\$36,844
316	Leather & Allied Product	14	0.0%	0.0%	\$30,583
321	Wood Products	181	0.2%	0.0%	\$37,456
322	Paper	1,334	1.3%	0.3%	\$56,119
323	Printing & Related Support	2,676	2.6%	0.5%	\$52,739
324	Petroleum & Coal Products	133	0.1%	0.0%	\$63,840
325	Chemical	2,844	2.7%	0.5%	\$78,694
326	Plastics & Rubber Products	322	0.3%	0.1%	\$52,237
327	Nonmetallic Mineral Product	197	0.2%	0.0%	\$45,192
331	Primary Metal	629	0.6%	0.1%	\$62,813
332	Fabricated Metal Product	2,809	2.7%	0.5%	\$46,907
333	Machinery	914	0.9%	0.2%	\$45,165
334	Computer & Electronics	297	0.3%	0.1%	\$56,876
335	Electrical Equipment, Appliances, & Components	688	0.7%	0.1%	\$48,071
336	Transportation Equipment	4,402	4.2%	0.8%	\$37,425
337	Furniture & Related Product	820	0.8%	0.2%	\$43,470
339	Miscellaneous	1,592	1.5%	0.3%	\$44,727
<b>WHOLESALE TRADE</b>					
423	Merchant Wholesalers (Durable)	7,163	6.9%	1.4%	\$60,400
424	Merchant Wholesalers (Non-durable)	6,983	6.7%	1.3%	\$52,268
425	Electronic Markets, Agents & Brokers	1,679	1.6%	0.3%	\$59,901
<b>RETAIL TRADE</b>					
4542	Vending Machine Operators	75	0.1%	0.0%	\$31,198
454311	Heating Oil Dealers	180	0.2%	0.0%	\$45,119
<b>TRANSPORTATION &amp; WAREHOUSING</b>					
481	Air Transportation	7,591	7.3%	1.4%	\$37,809
482	Rail Transportation	0	0.0%	0.0%	\$42,692
483	Water Transportation	150	0.1%	0.0%	\$54,282
484	Truck Transportation	1,459	1.4%	0.3%	\$39,291
485	Transit & Ground Passenger Transportation	2,506	2.4%	0.5%	\$24,339
486	Pipeline Transportation	0	0.0%	0.0%	\$99,732
487	Scenic & Sightseeing Transportation	231	0.2%	0.0%	\$19,833
488	Support Activities for Transportation	3,629	3.5%	0.7%	\$36,753
491	Postal Service	0	0.0%	0.0%	\$25,719
492	Couriers & Messengers	1,943	1.9%	0.4%	\$40,452
493	Warehousing & Storage	3,400	3.3%	0.6%	\$32,536
<b>INFORMATION</b>					
511	Publishing Industries	3,832	3.7%	0.7%	\$65,116
51211	Motion Picture & Video Production	349	0.3%	0.1%	\$58,360
515	Broadcasting	1,682	1.6%	0.3%	\$83,727
517	Telecommunications	4,853	4.7%	0.9%	\$73,834
<b>REAL ESTATE &amp; RENTAL &amp; LEASING</b>					
53113	Mini Warehouse and Self-Storage	80	0.1%	0.0%	\$29,072
53212	Truck Rental & Leasing	228	0.2%	0.0%	\$42,802
5324	Machinery/Equipment Rental & Leasing	408	0.4%	0.1%	\$67,242
<b>PROFESSIONAL, SCIENTIFIC &amp; TECHNICAL</b>					
54138	Testing Laboratories	218	0.2%	0.0%	\$78,280
54194	Veterinary Services	472	0.5%	0.1%	\$29,217
54185	Display Advertising	111	0.1%	0.0%	\$54,664



## Industrial Employment By Subsector (cont'd)

NAICS CODE	INDUSTRY DESCRIPTION	2007 EMPLOYMENT	SHARE OF INDUSTRIAL EMPLOYMENT	SHARE OF TOTAL EMPLOYMENT	2007 AVERAGE WAGE
<b>ADMINISTRATIVE &amp; SUPPORT &amp; WASTE MANAGEMENT &amp; REMEDIATION</b>					
561612	Security Guards & Patrol	3,093	3.0%	0.6%	\$18,298
56162	Security Systems	220	0.2%	0.0%	\$40,816
56171	Extermination & Pest Control	122	0.1%	0.0%	\$30,157
56172	Janitorial	3,525	3.4%	0.7%	\$21,185
56173	Landscaping	279	0.3%	0.1%	\$34,046
56174	Carpet & Upholstery Cleaning	66	0.1%	0.0%	\$34,638
56179	Other Services to Buildings & Dwellings	174	0.2%	0.0%	\$27,775
56191	Packaging & Labeling	807	0.8%	0.2%	\$33,531
562	Waste Management & Remediation	585	0.6%	0.1%	\$51,214
<b>HEALTH CARE &amp; SOCIAL ASSISTANCE</b>					
62191	Ambulance Services	874	0.8%	0.2%	\$30,274
621991	Blood & Organ Banks	910	0.9%	0.2%	\$39,917
62421	Community Food Services	230	0.2%	0.0%	\$31,181
<b>ACCOMMODATION &amp; FOOD SERVICES</b>					
72232	Caterers	1,373	1.3%	0.3%	\$20,515
72233	Mobile Food Services	29	0.0%	0.0%	\$11,633
<b>OTHER SERVICES</b>					
81112	Auto body, paint repair, glass	692	0.7%	0.1%	\$36,741
8113	Commercial & Ind. Equip Repair	327	0.3%	0.1%	\$59,633
811412	Appliance Repair & Maintenance	14	0.0%	0.0%	\$38,823
81222	Cemeteries & Crematories	138	0.1%	0.0%	\$31,502
81233	Linen & Uniform Supply	538	0.5%	0.1%	\$41,317
<b>TOTAL INDUSTRIAL EMPLOYMENT</b>		<b>104,300</b>	<b>100.0%</b>	<b>19.7%</b>	<b>\$49,426</b>
<b>TOTAL EMPLOYMENT</b>		<b>528,154</b>		<b>100.0%</b>	<b>\$51,732</b>

## Educational Attainment By Industry, Employed Civilian Workforce

INDUSTRY	NO HIGH SCHOOL	SOME HIGH SCHOOL	HIGH SCHOOL GRAD	SOME COLLEGE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	GRADUATE DEGREE
AGRICULTURAL, FORESTRY, FISHERIES	15%	11%	37%	14%	7%	11%	4%
MINING	3%	10%	37%	15%	8%	21%	6%
CONSTRUCTION	8%	13%	42%	18%	8%	9%	2%
MANUFACTURING	5%	8%	38%	17%	9%	18%	6%
TRANSPORTATION, COMMUNICATION & PUBLIC UTILITIES	2%	5%	37%	24%	10%	17%	5%
WHOLESALE TRADE	3%	6%	32%	19%	9%	25%	5%
RETAIL TRADE	4%	9%	40%	20%	8%	16%	3%
FINANCE, INSURANCE, & REAL ESTATE	1%	2%	24%	21%	10%	32%	9%
PERSONAL SERVICES	9%	11%	37%	18%	11%	13%	2%
BUSINESS & REPAIR SERVICES	4%	7%	28%	19%	10%	24%	8%
ENTERTAINMENT & RECREATION SERVICES	3%	5%	25%	20%	9%	30%	8%
PROFESSIONAL & RELATED SERVICES	1%	3%	19%	14%	11%	26%	26%
PUBLIC ADMINISTRATION	0%	2%	22%	24%	13%	25%	13%
<b>TOTAL</b>	<b>3%</b>	<b>6%</b>	<b>30%</b>	<b>18%</b>	<b>10%</b>	<b>21%</b>	<b>11%</b>

Figure 2: Educational Attainment by Industry, Employed civilian workforce  
Source: US Census Bureau 2002; Economics Research Associates

## Industrial Sector versus other Key Sectors, Philadelphia, 2007

SECTOR	EMPLOYMENT	AVERAGE WAGE
<b>INDUSTRIAL</b>	<b>104,300</b>	<b>\$49,426</b>
RETAIL TRADE	46,324	\$24,984
EDUCATIONAL SERVICES	54,831	\$55,362
HEALTH CARE & SOCIAL ASSISTANCE	126,589	\$44,910
FINANCE & INSURANCE	36,236	\$95,413
PROFESSIONAL, SCIENTIFIC, AND TECHNICAL SERVICES	44,438	\$90,197

Figure 3: Comp of 2007 Employment and Average Wages  
Source: RIMS II Calculations by Economics Research Associates

## A ROUTE TO ECONOMIC MOBILITY

A large portion of the city's population experiences barriers to employment due to low education levels, less specialized skills sets, language barriers, or lack of mobility. Only 20 percent of Philadelphians have college degrees, placing Philadelphia 92nd of the country's 100 largest cities in educational attainment.

As Figures 2 and 3 demonstrate, across the United States the industrial sector is a strong source of employment for people without high educational attainment levels – and is one of the largest employment-generating sectors in the Philadelphia. Industrial jobs typically provide higher wages, better benefits, and wider opportunities for skill development and career advancement than other employment opportunities for lower skilled workers. The construction, manufacturing, transportation, communication, public utilities, and wholesale sectors in particular, provide excellent opportunities for lower skilled workers. For many Philadelphians, industrial jobs are a path to economic advancement.

## THE INDUSTRIAL SECTOR'S RIPPLE EFFECTS TO THE PHILADELPHIA ECONOMY

Philadelphia's industrial sector is inextricably linked to other key sectors of the economy, including retail, health care, tourism, hospitality, and others. Produce and other food products, for example, are stored, packaged, and distributed from warehouses and distribution centers in South Philadelphia to restaurants, hotels, the Pennsylvania Convention Center, the Reading Terminal Market, schools, universities, grocery stores, and other businesses throughout the city and region. Similarly, industrial businesses support Center City's office buildings by providing printing, document storage, construction, equipment repair, and a variety of other services. There are countless examples of the interdependence of the industrial sector and other key sectors of the city's economy. In many cases, the strength of these linkages relies on geographic proximity.

To assess the impact of these linkages, it is necessary to quantify the purchasing patterns of key sectors as they relate to goods and services demanded by other sectors. This model is known as Regional Input-output Modeling System (RIMS). RIMS traces spending through an economy and measures the cumulative effects of that spending. This allows a "multiplier" to be determined that describes the effect of one industry on others.

The RIMS analysis demonstrates that Philadelphia's 104,300 industrial sector jobs generate approximately \$5.2 billion in direct payroll and \$47.8 billion in direct economic output. But the industrial sector supports an additional 61,900 indirect and induced jobs, generates approximately \$2.3 billion annually in indirect

Figure 4: Total Impacts from existing Industrial Jobs Philadelphia

Source: RIMS II Calculations by Economics Research Associates

### TOTAL IMPACTS FROM EXISTING INDUSTRIAL JOBS

ECONOMIC IMPACT	EMPLOYMENT	PAYROLL (BILLIONS)	ECONOMIC OUTPUT (BILLIONS)
Direct Economic Impact	104,300	\$5.155	\$47.796
Indirect/Induced Economic Impact	61,898	\$2.295	\$16.780
<b>Total Economic Impact</b>	<b>166,199</b>	<b>\$7.450</b>	<b>\$64.576</b>

and induced payroll, and catalyzes \$16.8 billion annually in indirect and induced economic output across other sectors. Thus, the total impact of the industrial sector in Philadelphia is substantial – 166,200 total jobs, \$7.5 billion in total annual payroll, and \$64.6 billion in total annual economic output. As a frame of reference, the health care sector (another key driver of Philadelphia's economy) has an economic output of \$26 billion, though it employs 126,589 workers; the industrial sector generates higher levels of spin-off activity and pays higher wages than the health care industry.

Figure 5: Comparison of Total Economic Impacts- Industrial Sector and other Key Sectors

Source: RIMS II Calculations by Economics Research Associates

### COMPARISON OF TOTAL ECONOMIC IMPACTS

SECTOR	DIRECT JOBS	TOTAL JOBS	TOTAL PAYROLL (BILLIONS)	TOTAL ECONOMIC OUTPUT (BILLIONS)
<b>Industrial</b>	<b>104,300</b>	<b>166,199</b>	<b>\$7.45</b>	<b>\$64.58</b>
Retail Trade <sup>1</sup>	46,324	52,499	\$1.47	\$6.82
Educational Services	54,831	64,070	\$3.62	\$9.29
Health Care & Social Assistance <sup>2</sup>	126,589	151,938	\$6.77	\$25.95
Finance & Insurance	36,236	67,967	\$5.81	\$35.01
Professional, Scientific, and Technical Services <sup>3</sup>	44,438	60,805	\$4.86	\$17.47

<sup>1</sup> Excludes NAICS categories 4542 and 454311 which were categorized as Industrial.

<sup>2</sup> Excludes NAICS categories 62191, 621991, and 62421 which were categorized as Industrial.

<sup>3</sup> Excludes NAICS categories 54138, 54194, and 54185 which were categorized as Industrial.

## THE FISCAL IMPACT OF THE INDUSTRIAL SECTOR

The industrial sector accounts for over 15 percent of the City of Philadelphia’s tax revenue in the four major tax categories – business privilege tax, wage tax, property tax and sales tax - contributing \$323 million annually to the City of Philadelphia’s coffers. This is 23 percent of the total tax revenue on gross receipts and net income. On a per worker basis, employees in industrial businesses contribute approximately \$3,100 in taxes per year. This estimate excludes personal sales tax generated on the purchase of retail goods and services by employees. While property and wage taxes are lower on a per worker basis than the private sector as a whole, business privilege taxes for industrial workers are higher per capita than the entire private sector. Note that businesses located in Keystone Opportunity Zones (KOZ) are excluded from the total estimated Business Privilege Tax (BPT), which may contribute to the lower per worker impact overall.

Figure 6: Summary of Industrial and Total Private Annual Taxes

- <sup>1</sup> Business Privilege Tax from FY 2006 (accounts in Keystone Opportunity Zones excluded)
- <sup>2</sup> Property tax based on current market values and tax rates
- <sup>3</sup> Industrial wage tax based on estimations of wages and current tax rates; private total from FY 2008
- <sup>4</sup> Sales tax estimates assume the average non-resident industrial worker spends approximately five percent of their average retail spending at work (within Philadelphia); assumes residents spend 80 percent within the city.

Figure 7: Total Estimated Major Taxes Impact by Sector & Per Worker Estimated Major Taxes Impact

- <sup>1</sup> Business Privilege Tax from FY 2006 (accounts in Keystone Opportunity Zones excluded)
- <sup>2</sup> Based on estimations of wages and current tax rates; private total from FY 2008
- <sup>3</sup> Property tax based on current market values and tax rates; total commercial taxes are gross estimates (not broken down by sector)
- <sup>4</sup> Sales taxes not included
- <sup>5</sup> Excludes NAICS categories 4542 and 454311 which were categorized as Industrial.
- <sup>6</sup> Excludes NAICS categories 62191, 621991, and 62421 which were categorized as Industrial.
- <sup>7</sup> Excludes NAICS categories 54138, 54194, and 54185 which were categorized as Industrial.

### SUMMARY OF INDUSTRIAL AND TOTAL PRIVATE ANNUAL TAXES

TAX TYPE	INDUSTRIAL			PRIVATE SECTORS	
	PER WORKER	TOTAL	% OF PRIVATE	PER WORKER	TOTAL
Business Privilege Tax <sup>1</sup>	\$858	\$89,505,888	23%	\$727	\$384,174,019
Property Tax <sup>2</sup>	\$315	\$32,847,652	16%	\$377	\$199,098,084
Wage Tax <sup>3</sup>	\$1,868	\$194,837,165	15%	\$2,456	\$1,297,092,833
Sales Tax <sup>4</sup>	\$55	\$5,724,641	N/A	DNA	DNA
<b>Total</b>	<b>\$3,096</b>	<b>\$322,915,345</b>			

### TOTAL ESTIMATED MAJOR TAXES IMPACT BY SECTOR

SECTOR	DIRECT JOBS	BUSINESS PRIVILEGE TAX <sup>1</sup> (MILLIONS)	WAGE TAX <sup>2</sup> (MILLIONS)	PROPERTY TAX <sup>3</sup> (MILLIONS)	TOTAL (LESS PROPERTY) (MILLIONS)
<b>Industrial</b>	<b>104,300</b>	<b>\$89.5</b>	<b>\$194.8</b>	<b>\$32.8</b>	<b>\$294.3</b>
Retail Trade <sup>5</sup>	46,324	\$ 27.9	\$ 70.8		\$ 98.7
Educational Services	54,831	\$ 2.4	\$ 121.4		\$ 123.8
Health Care & Social Assistance <sup>6</sup>	126,589	\$ 18.3	\$ 277.8	\$ 166.3	\$ 296.1
Finance & Insurance	36,236	\$ 36.6	\$ 133.7		\$ 170.3
Professional, Scientific, & Technical Services <sup>7</sup>	44,438	\$ 91.8	\$ 166.1		\$ 257.9

### PER WORKER ESTIMATED MAJOR TAXES IMPACT

SECTOR	DIRECT JOBS	BUSINESS PRIVILEGE TAX <sup>1</sup> (MILLIONS)	WAGE TAX <sup>2</sup> (MILLIONS)	PROPERTY TAX <sup>3</sup> (MILLIONS)	TOTAL (LESS PROPERTY) (MILLIONS)
<b>Industrial</b>	<b>104,300</b>	<b>\$858</b>	<b>\$1,868</b>	<b>\$315</b>	<b>\$2,726</b>
Retail Trade <sup>5</sup>	46,324	\$ 602	\$ 1,528		\$ 2,131
Educational Services	54,831	\$ 44	\$ 2,214		\$ 2,258
Health Care & Social Assistance <sup>6</sup>	126,589	\$ 145	\$ 2,195		\$ 2,339
Finance & Insurance	36,236	\$ 1,010	\$ 3,690		\$ 4,700
Professional, Scientific, & Technical Services <sup>7</sup>	44,438	\$ 2,066	\$ 3,738		\$ 5,804

Source: City of Philadelphia Department of Revenue; Board of Revision of Taxes; Economics Research Associates

Despite a pervasive post-industrial mindset, Philadelphia’s industrial economy is vibrant, productive, and significant. Philadelphia is no longer the Workshop of the World; the city’s manufacturing losses over the past fifty years are well documented. However, its industrial base remains a critical component of the city’s overall economy.



**SANDMEYER LANE INDUSTRIAL**

SOURCE: PICTOMETRY INTERNATIONAL 2009 ,THE CITY OF PHILADELPHIA

# INDUSTRIAL MARKET DEMAND: THE FUTURE OF INDUSTRY IN PHILADELPHIA

Philadelphia's long-term health depends in part on its ability to attract, accommodate, and retain industry. The area's economy was historically linked to the river and those manufacturers who utilized the City's advantages as a center of rail, water, and highway transportation. Today, production, distribution, and repair continue to be critical economic engines, though Philadelphia's advantages and attributes have shifted.

In this section of the report, Philadelphia's strengths and weaknesses, from the perspective of the industrial base, are examined as a foundation for understanding the City's regional and national competitiveness, as well as its ability to target, attract, and retain specific industrial clusters and sectors. *If the City of Philadelphia develops a focused strategy around traditional manufacturing, advanced manufacturing, and transportation and logistics, there is an opportunity to add upwards of 22,000 industrial jobs in Philadelphia over the next twenty years.*

Several strengths help to support the industrial base, including:

- > Local access to a workforce well suited for industrial employment
- > Strong institutional assets in key sectors like education and health
- > An advantageous location at the center of the Northeastern U.S. megaregion with regional access to a large consumer market
- > A growing commercial and passenger airport with unusually close proximity within city limits

However, these strengths are balanced against several weaknesses which must be addressed going forward, including:

- > Large inventory of poorly-situated buildings not well suited for modern industrial users
- > Generally low education attainment for higher skilled industrial positions
- > Job training focused on older industries and skills
- > A relatively high cost structure

Institute for a Competitive Inner City (ICIC)'s evaluation of the City's competitive position is based on in-depth analysis of industrial trends and real estate market conditions in the City and the suburbs as well as on-the-ground interviews and discussions with businesses and economic development and industry networking organizations. ICIC conducted more than 50 interviews with firm-level decision makers in Philadelphia and its surrounding area, representatives from industry associations, and outside experts. In addition to firm-level interviews, discussions were held with city personnel and business people with an understanding of the Philadelphia market.



## WORKFORCE

One of Philadelphia's greatest strengths is its workforce. The Philadelphia labor market has a large number of workers who are high school educated and have the basic skills necessary to compete for traditional industrial jobs. Firms typically report long tenure of employees, low turnover, and a trainable workforce. Philadelphia's location and transportation system provides an advantage in that businesses can hire from their immediate area, but can also cast a wider net and employ people from other parts of the region, whether that means another neighborhood in Philadelphia, southern New Jersey, or the surrounding Pennsylvania suburbs.

Of course, given Philadelphia's physical layout and its large land area, however, there are noticeable differences when comparing neighborhoods within the city. For example, while firms located in or near Center City report that most of their workforce is able to commute via public transportation, firms located in more remote sections, such as the Northeast, rely on their workers driving to work and tend to rely on their local neighborhoods to source workers.

The Philadelphia Workforce Investment Board (PWIB) reports that only 20 percent of Philadelphians have a college degree and 25 percent of the City's residents do not have a high school diploma, which is twice the state average. While sobering, these statistics demonstrate a real opportunity to affect change. *The PWIB projects that addressing these issues and raising Philadelphia's educational attainment levels just to the state level would generate almost 27,000 more workers, over 32,000 more people actively employed, 5,200 fewer people unemployed, and a more than \$1.8 billion (or 10.5%) rise in the City's wage base.*

In contrast to the strength of the local production workforce as cited by many existing employers, the workforce within the City and its training institutions will require significant improvement to remain competitive in advanced, high-skilled industries. The labor force in Philadelphia has a relatively low percentage of workers with post-high school course work, which can limit their ability to fill jobs in many advanced and highly technical manufacturing industries. For many production industries, the high school degree is a sufficient condition for secure employment, but moving into an advanced manufacturing environment can require advanced skills.

The workforce training programs in the City are not currently focused on training employees for the new industries that are growing in the industrial sector. Of 15 career and technical training programs for high school seniors and recent graduates, only two programs offer training in process technology or pre-engineering studies. All other programs offer programs in building and construction and automotive trades, which are typically more traditional programs for vocations and technical training. Technical training in skills defined for advanced manufacturing sectors could support new and emerging industry sectors in the City.

While these are certainly legitimate concerns for Philadelphia, the fact remains that the majority of industrial jobs in the U.S. are held by people with a high school education or less, and some skills can be acquired on the job. With this in mind, it is important to consider the work force demands for each group of target clusters, as the issues described have a more profound impact in certain sectors of the economy.

## INSTITUTIONAL ASSETS

Philadelphia has very strong economic institutional drivers in the health and education sectors. As manufacturing economies transition to newer, more advanced forms of production, key institutional assets like universities and other research centers can be strong anchors for future growth and development. In Philadelphia, several universities located within the city limits provide a strong anchor for research and commercialization. If better channeled into post-incubation space within the City, these resources can be strong drivers of economic growth in new manufacturing centers. In addition, the health sector, a strong asset in the region with a large concentration of employment in the City, can provide a foundation for medical device development, pharmaceutical production, and other advanced manufacturing industries as well as related distribution.

## LOCATION AND CONNECTIONS

Regionally and nationally, being located in the middle of the Northeast Corridor of the United States is a major asset for clusters that rely on distribution. The City is within a five-hour drive of one-quarter of the population of the United States; 46.1 million people live within a 200-mile radius of Philadelphia.

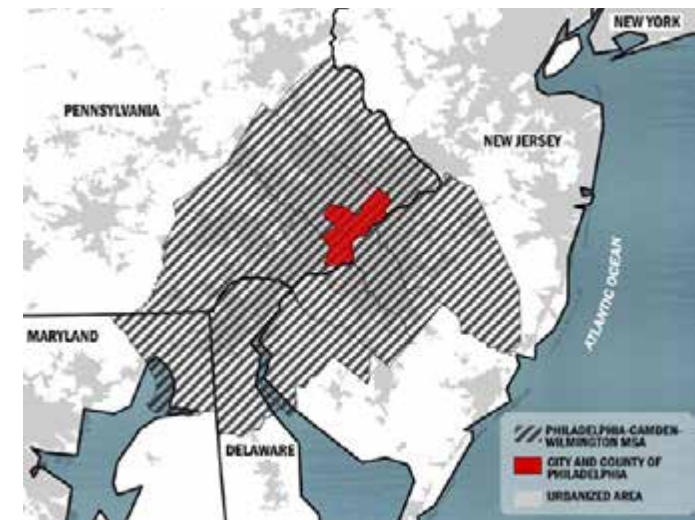
A strong regional highway network links the City to several large metropolitan areas, most notably New York City, Baltimore and Washington DC. Reflected in the growth of transportation and logistics sectors of the economy, the City's close proximity and highway backbone serves several major industrial parks and districts along the Interstate 95 corridor, and position the City well to capitalize further on the emerging truck freight business in the region.

Philadelphia's international airport has proven to be a strong regional asset, particularly for the City. Few cities in the US still have a major international airport with room to expand so near the center city. The City's air cargo business has increased substantially in recent years as smaller, high-value items are increasingly shipped "just-in-time" by air.

The regional rail for freight is losing traction in the region as smaller, higher-value components in manufacturing processes are shipped by air and truck. Moving large goods through long-haul and regional freight train is less attractive from urban markets. The seaport is in a similar position. Petroleum is now the major water freight cargo in the City today as fewer industrially manufactured goods travel to or from the City by sea, with most shipped to larger ports on the Eastern Seaboard and then trucked to Philadelphia.

## COST STRUCTURE

A key observation that was repeated numerous times in interviews and research was the high cost of doing business in Philadelphia. The most significant sources of such costs appear to derive from the City's tax structure, labor costs and construction costs.



## CLUSTER ANALYSIS

Clusters are geographically proximate groups of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities, and trade associations. Clusters themselves differ from NAICS-based industries and subsectors, because they incorporate not just specific economic sub-sectors, but also the firms and businesses that provide inputs for the production process and distribute the end-products. Cluster-based economic development strategy, therefore, focuses not just on specific business or sectors, but rather on the all the firms that are related in a specific cluster.

In order to identify clusters that could serve as engines for industrial employment in Philadelphia, ICIC analyzed the performance of the 59 clusters that are present in Philadelphia. This analysis consisted of two distinct steps. The first step was to remove weak and underperforming clusters. ICIC utilized location quotient analysis and applied criteria based on relative employment growth rates in the city, MSA, and the U.S. as a whole to identify a short-list 31 clusters as potential targets for retention and attraction.

The second was to narrow the focus to those clusters with the greatest opportunities for industrial retention and attraction. At this stage, ICIC used a variety of metrics to identify clusters that were high-performing and fast-growing or had potential for job retention. In addition to straightforward metrics such as U.S. employment growth in each cluster and the performance of Philadelphia relative to the U.S., employment growth scenarios were used to identify clusters that had the greatest economic development potential and opportunity, and were most likely to be positively influenced by a change in the competitive environment. After the employment scenarios were evaluated, ICIC aggregated a final list of eleven target clusters and grouped them as one of three types:

### TRADITIONAL MANUFACTURING

Apparel, Building Fixtures and Equipment, Construction Housing and Real Estate, Publishing and Printing, Metal Fabrication and Processed Food

### ADVANCED MANUFACTURING

Biopharmaceuticals, Energy, and Medical Devices; and

### TRANSPORTATION

Transportation and Logistics, and Wholesale.

In all, the target clusters represent 64 percent of industrial employment in Philadelphia. These target clusters formed the basis for the land projections and overall recommendations for industrial growth and retention.

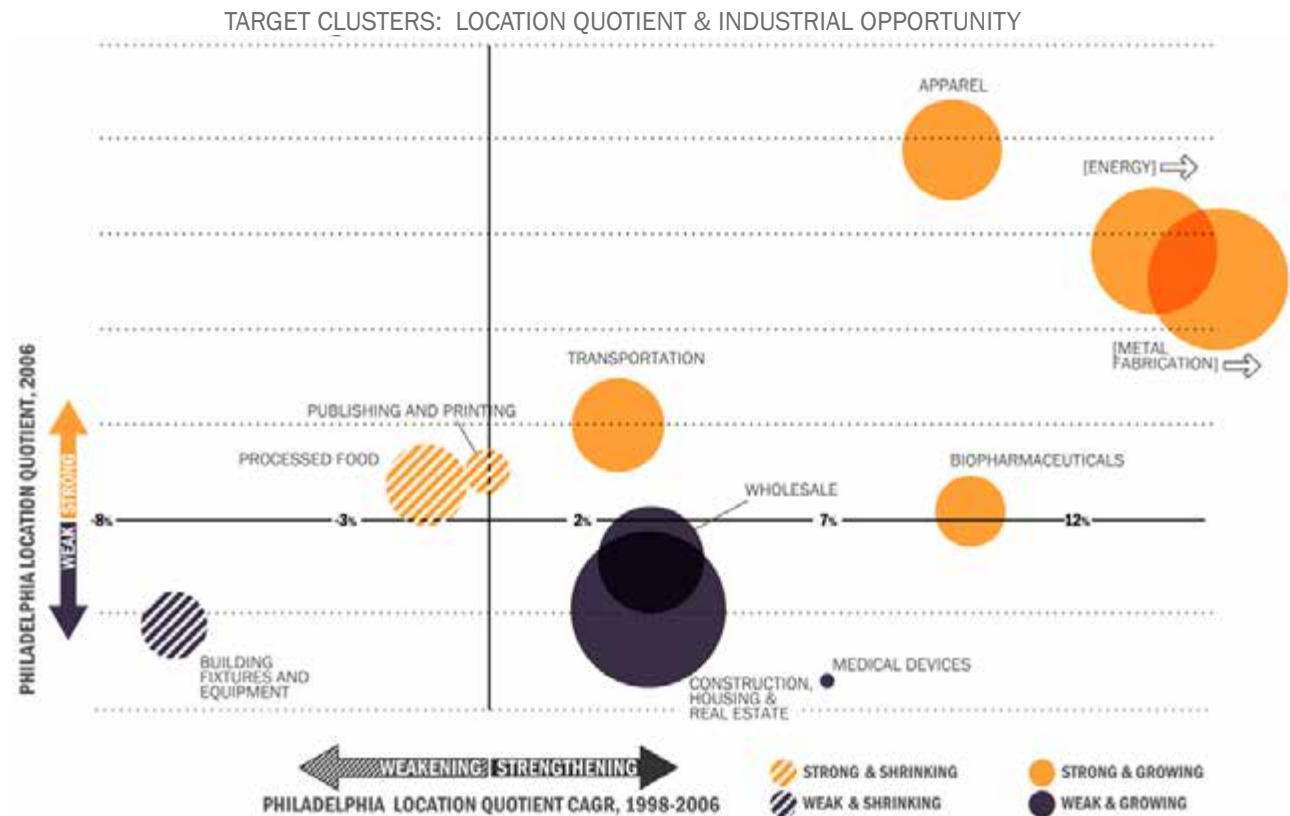


Figure 8: Target Clusters: Location Quotient & Industrial Opportunity  
Source: ICIC



# TRADITIONAL MANUFACTURING

INCLUDES: Apparel; Building Fixtures & Equipment; Construction Housing & Real Estate; Metal Fabrication; Publishing & Printing; and Processed Food

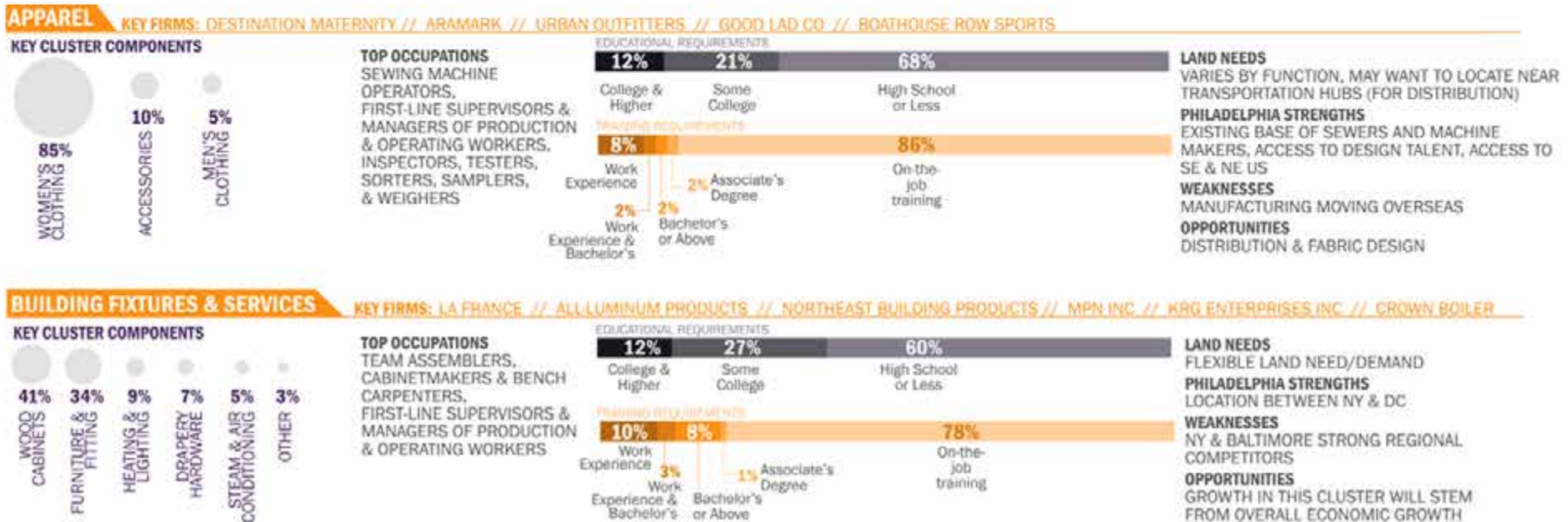
OPPORTUNITY: **4,400** New Jobs Over The Next Twenty Years

Traditional Manufacturing is based on the more typical brick-and-mortar facility associated with manufacturing, with firms generally relying on mechanized production and a generalized work force. The clusters examined were: Apparel; Building Fixtures and Equipment; Construction, Housing, and Real Estate (CHRE); Publishing and Printing; Metal Fabrication and Processed Food. Most of these clusters have a long legacy in Philadelphia and, even today, are strong in Philadelphia relative to the US. Others, such as CHRE, have a weak presence in Philadelphia relative to other cities but are important because of the expected job and revenue growth of the cluster nationally over the next 10-20 years.

Each of these clusters comprise a diverse set of functions. The Apparel cluster, for example – thought of by many as consisting primarily of headquarters operations for firms like Urban Outfitters and Destination Maternity – sports a prominent sub-sector of sewers and cutters which some firms utilize for a portion of their manufacturing, in particular for rapid replenishment items. In addition, there are traditional manufacturers such as Good Lad children’s apparel, and several large apparel distribution centers such as Bodek & Rhodes and Marshall’s / TJ Maxx.

Philadelphia’s strengths in apparel brand management and distribution are complemented by the City’s strengths in fashion and design, the result of Philadelphia University and Drexel University, the City’s proximity to New York and relatively low cost structure compared to New York, and strong arts schools. Going forward, Philadelphia should consider how to better utilize these assets to retain or even grow jobs in the cluster. Similarly, food processing in Philadelphia is a long-time strength, with a legacy of unique brands and products (including companies such as Dietz & Watson and Tastykake), strong ethnic communities, and a prime location to access markets up and down the Eastern Seaboard.

While the local presence in each of these industries is strong, the national outlook for some of these clusters is less promising. For example, Printing and Publishing is experiencing a steep decline in employment at the national level. Building Fixtures and Equipment, as well as Construction, Housing, and Real Estate, have been hit hard by the current decline of the housing market, though this is not expected to hinder the clusters’ long-term prospects. In terms of space needs, this group of clusters shows quite a bit of variation, but it is safe to say that in most cases, the biggest challenges and opportunities are not related to buildings or land. Instead, it will be up to firms and policymakers to develop a sustainable strategy to grow or retain jobs in each of these areas, in many cases by focusing on a niche that has a high probability of success.



TRADITIONAL MANUFACTURING CLUSTERS (CONT'D)

**CONSTRUCTION HOUSING & REAL ESTATE**

KEY FIRMS: JJ WHITE INC // FLUIDICS INC // WESTINGHOUSE LIGHTING CORP // ELLIOTT-LEWIS CORP // ACME MANUFACTURING CO

KEY CLUSTER COMPONENTS



**TOP OCCUPATIONS**  
CONSTRUCTION LABORERS, PLUMBERS, PIPEFITTERS, & STEAMFITTERS, CARPENTERS

EDUCATIONAL REQUIREMENTS



TRAINING REQUIREMENTS



**LAND NEEDS**

FLEXIBLE, THROUGHOUT PHILADELPHIA

**PHILADELPHIA STRENGTHS**

SMALL PARCELS IN MANY NEIGHBORHOODS, STRONG GROWTH POTENTIAL

**WEAKNESSES**

LAGGED BEHIND US EMPLOYMENT IN LAST DECADE, HIGH CONSTRUCTION COSTS

**OPPORTUNITIES**

GROWTH WILL STEM FROM OVERALL GROWTH, REDUCE NEW CONSTRUCTION COSTS BY PROVIDING CITY EXPERTISE

**PUBLISHING & PRINTING**

KEY FIRMS: TEMPLE UNIVERSITY // BARTASH PRINTING INC // SUN CHEMICAL CORP // KRENGEL QUAKER CITY CORP

KEY CLUSTER COMPONENTS



**TOP OCCUPATIONS**  
PRINTING MACHINE OPERATORS, EDITORS, ADVERTISING SALES AGENTS

EDUCATIONAL REQUIREMENTS



TRAINING REQUIREMENTS



**LAND NEEDS**

FLEXIBLE, TYPICALLY CENTER CITY

**PHILADELPHIA STRENGTHS**

LEGACY IN SCIENTIFIC PUBLISHING

**WEAKNESSES**

ELECTRONIC MEDIA PUSHING OUT PRINT, INCREASED GLOBAL COMPETITION

**OPPORTUNITIES**

ALIGN WITH PHILADELPHIA INSTITUTIONS, ENCOURAGE VALUE-ADDED SERVICES

**FOOD PROCESSING**

KEY FIRMS: KRAFT FOODS GLOBAL // TASTYKAKE // DIETZ & WATSON // PHILADELPHIA COCA-COLA BOTTLING CO // CROWN BEVERAGE PACKAGING

KEY CLUSTER COMPONENTS



**TOP OCCUPATIONS**  
BAKERS, PACKAGING & FILLING MACHINE OPERATORS & TENDERS, FOOD BATCHMAKERS

EDUCATIONAL REQUIREMENTS



TRAINING REQUIREMENTS



**LAND NEEDS**

FLEXIBLE, DEPENDS ON FIRM

**PHILADELPHIA STRENGTHS**

LEGACY OF BRANDS & PRODUCTS, RESTAURANT SCENE

**WEAKNESSES**

MUCH OF SUPPLY CHAIN OUTSIDE CITY

**OPPORTUNITIES**

EXPLOIT DEMAND FOR LOCAL FOOD, LEVERAGE PHILADELPHIA BRAND

**METAL FABRICATION**

KEY FIRMS: AKER PHILADELPHIA SHIPYARD // US NAVY // RHOADS INDUSTRIAL // PENNSHIP SERVICE // OWL INTERNATIONAL

KEY CLUSTER COMPONENTS



**TOP OCCUPATIONS**  
FIBERGLASS LAMINATORS & FABRICATORS, WELDERS, SOLDERERS, BRAZERS & CUTTERS, TEAM ASSEMBLERS

EDUCATIONAL REQUIREMENTS



TRAINING REQUIREMENTS



**LAND NEEDS**

VERY LARGE FOOTPRINTS & REQUIREMENTS

**PHILADELPHIA STRENGTHS**

AKER & SUPPORTING BUSINESSES

**WEAKNESSES**

NO NATURAL ADVANTAGE

**OPPORTUNITIES**

TRY TO LOCALIZE SUPPLY CHAIN

# ADVANCED MANUFACTURING

INCLUDES: Biopharmaceutical; Energy; and Medical Devices

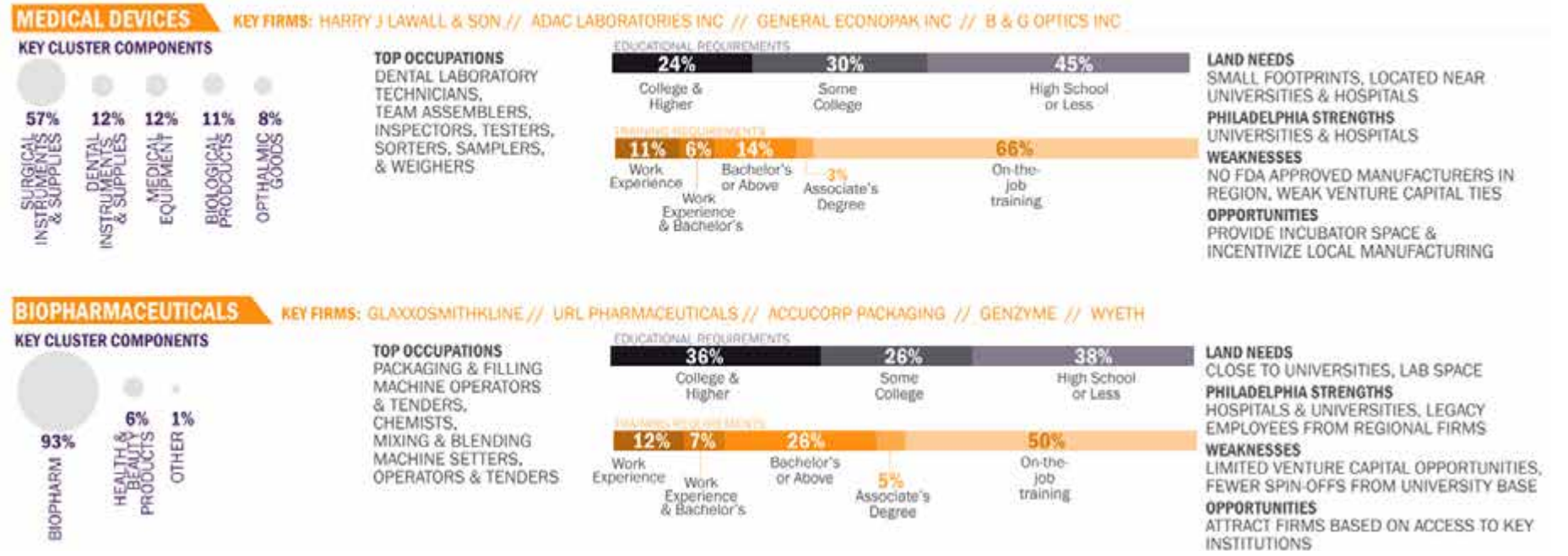
OPPORTUNITY: **940** New Jobs Over The Next Twenty Years

While Traditional Manufacturing has long been a local strength, Advanced Manufacturing is an area that has shown great growth potential nationally and has the potential to thrive in Philadelphia, given many of the City's unique attributes. Advanced Manufacturing includes the Biopharmaceuticals, Medical Devices and Energy clusters, which are examined closely in this study, but can also be used to describe some of the activities associated with green manufacturing, new energy technologies and other innovative segments of the economy. Biopharmaceuticals and Medical Devices benefit from the strong hospital and university presence in Philadelphia as well as the large presence of leading pharmaceutical firms across the region. In fact, Philadelphia is located in the midst of one of the world's most prominent life sciences corridors, extending from central New Jersey through the Philadelphia region to Wilmington, Delaware. This group – especially Biopharmaceuticals – is bolstered by the legacy of pharmaceutical firms in the region, allowing Philadelphia unique access to industry executives and procedural and legal expertise.

While high in potential, there are weaknesses within the Advanced Manufacturing clusters. One of the most significant is the fact that, despite the human capital in the City, it has historically been difficult to link the many institutions in Philadelphia and the Biopharmaceuticals or Medical Device clusters. A study released by the Milken Institute has shown life sciences research and development to be an area in which the Philadelphia region is becoming stronger. However, one reason the City may lag behind the region which was cited in multiple interviews is the fact that larger, more established firms have gravitated to suburban areas where they can expand with much more ease. This consideration can outweigh access to research and university-educated talent, especially as firms grow and become more focused on commercialization and manufacturing.

An additional issue is the lack of a well-developed venture capital foundation in Philadelphia. It is a widely-held belief that the lifecycle of Biopharmaceutical companies – often going from very small to either being acquired by a large pharmaceutical company or growing quickly into a large-scale manufacturer – makes a move to the suburbs a logical step, meaning that part of the City's focus needs to be on retaining successful start-ups in order to ensure that they can be large-scale job creators down the road.

Finally, it is interesting to note that Philadelphia has no FDA-approved large-scale manufacturers of medical devices, which means that firms in this cluster are forced to acquire components from outside of Philadelphia or look elsewhere if they wish to go to scale on manufacturing products that they develop. If large-scale manufacturers were to establish themselves in Philadelphia, their space needs would likely be greater than existing advanced manufacturing firms in the City.



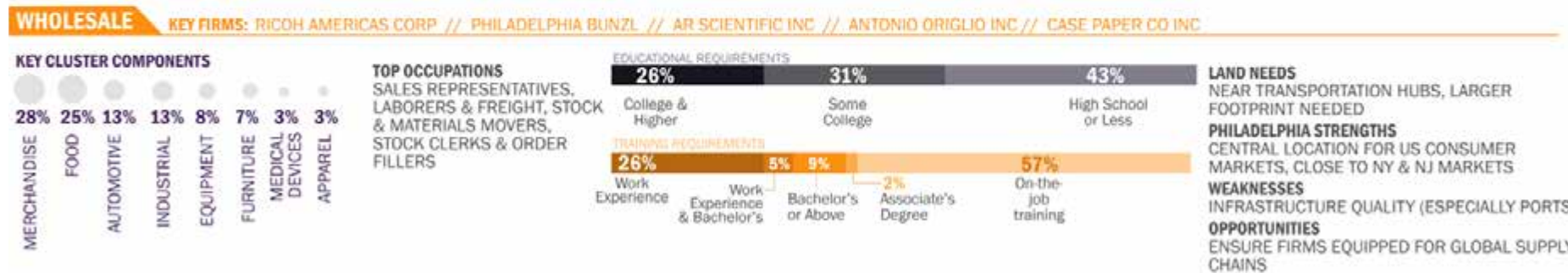
# TRANSPORTATION

INCLUDES: Transportation & Logistics; Wholesale

OPPORTUNITY: **9,757** New Jobs Over The Next Twenty Years

The third group of clusters is represented by Transportation and Logistics and Wholesale, which have been combined into a single group as they functionally comprise the goods movement industries. In Philadelphia, these clusters have grown by more than 10% from 1998 to 2006, mirroring the national trend, and this growth is expected to continue over the next decades. Philadelphia provides a strong hub of activity and has the advantage of easy access to cities such as New York and Washington, DC, as well as good access to the rest of the east coast consumer market. This central location combined with key infrastructure (such as multiple interstate highways, a major airport, and a port) makes Philadelphia a logical place for firms in this group to do business.

Some of the bigger issues facing this group of clusters include concerns about infrastructure quality and strong regional competition, as firms outside of the City also try to capitalize on the advantages that Philadelphia's location offers. But perhaps the biggest obstacle to growing these clusters is the sizable land footprint required by firms in goods movement for distribution facilities. For example, from 1992 to 2003, square footage per employee in the Warehousing industry has increased from 1,273 to more than 2,300; compare this to all of manufacturing, which requires just over 750 square feet per person on average. This increase in space needs constrain opportunities to utilize smaller or oddly-configured urban land tracts, motivating firms to locate in areas with more (and cheaper) available land – especially those outside of the City.



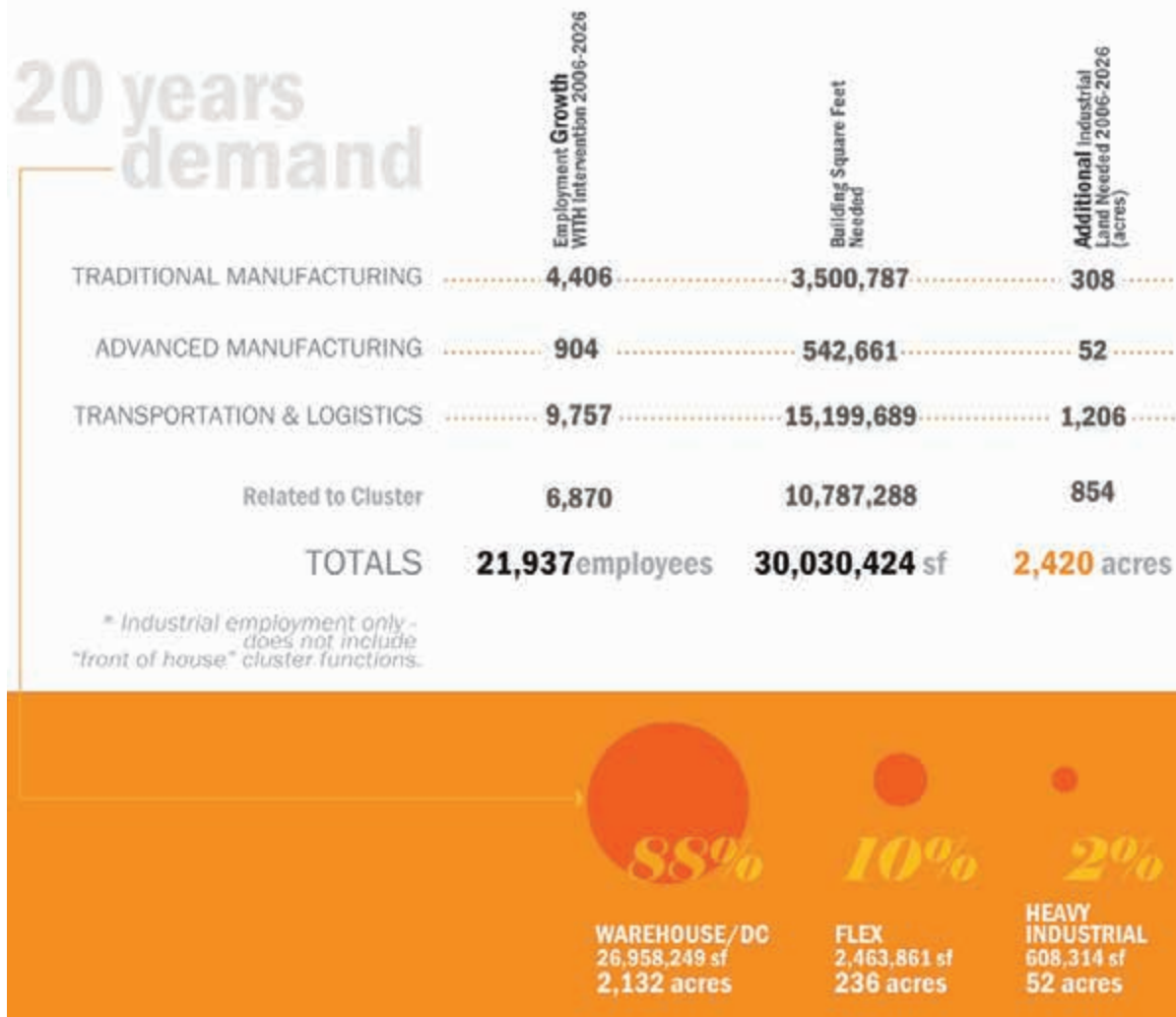


Figure 9: Twenty Year Land Demand  
Source: Interface Studio; ICIC

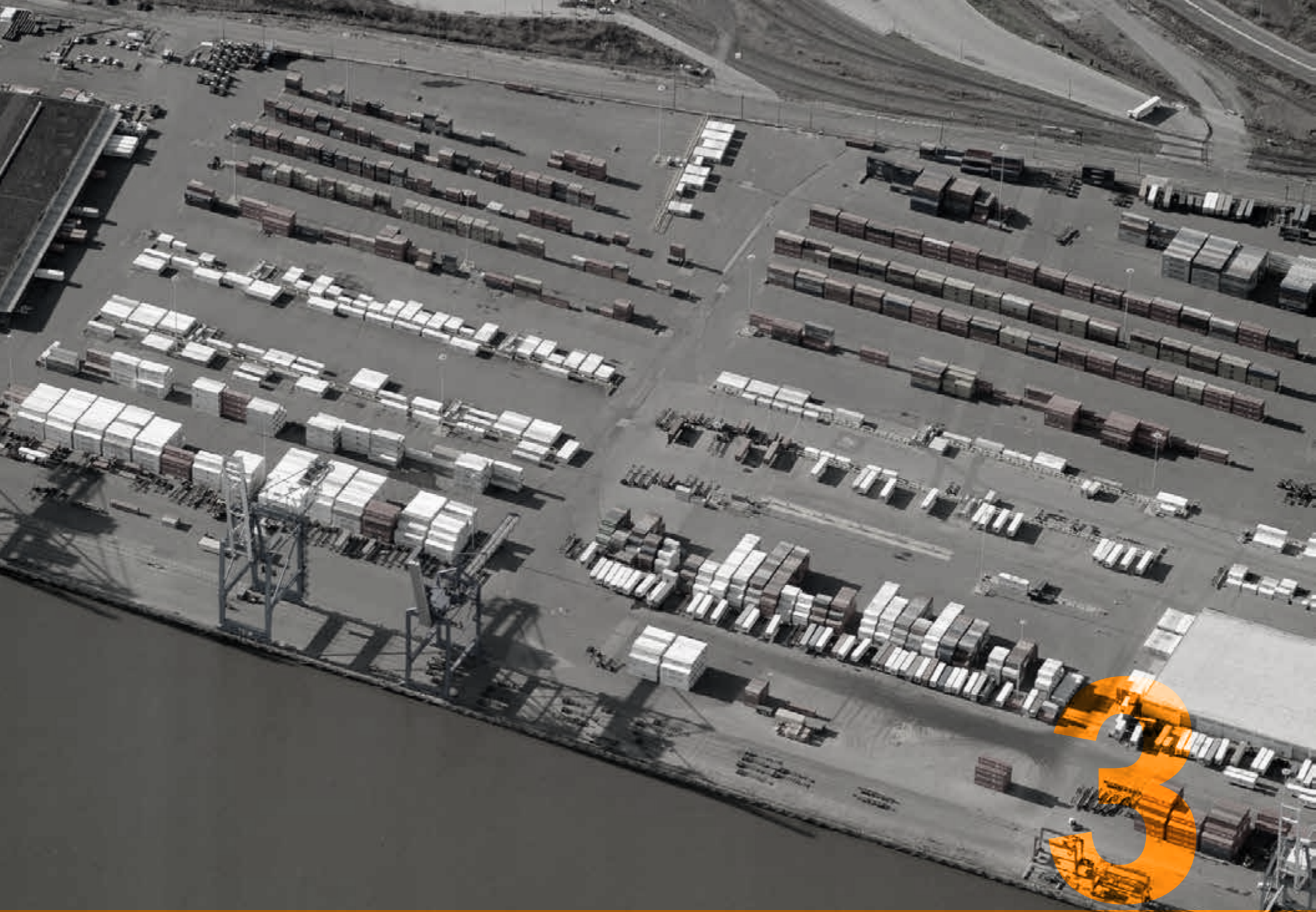
## TRANSLATING EMPLOYMENT PROJECTIONS INTO LAND DEMAND

In order to determine the amount of land necessary to accommodate projected future industrial development, the team estimated building square footage-per-employee for functions within each cluster and floor-area ratios for each of three facility types identified as typical of modern industrial configurations by the study, and described in detail in the next chapter - Flex/Research & Development (used for offices, showrooms, distribution, laboratories, R&D, or light manufacturing), Purpose-Built Manufacturing (custom-designed to serve a particular manufacturing process), and Warehouse/Distribution (used for the storage, staging, re-packing and distribution of goods).

Once these inputs were determined, the translation of employment demand into land demand was accomplished by:

1. Multiplying employment growth (or shrinkage) over the 2009 baseline by building square footage-per-employee figures - resulting in estimates of projected building square footage demand, by cluster, for each of the three building types.
2. Multiplying this demand by floor-area ratios typical to each building type - resulting in an estimate of land required for each cluster to satisfy 20-year growth demand.

Reconciling this demand with current land supply is difficult due to the natural turnover that will occur of sites currently in use. However, if Philadelphia develops and implements a focused strategy around the Traditional Manufacturing, Advanced Manufacturing, and Transportation cluster groups, there is an opportunity to add nearly 22,000 industrial jobs in Philadelphia over the next 20 years. This growth in the target clusters will be mitigated somewhat by a projected loss of 4,900 jobs in those industrial clusters in which Philadelphia does not have a competitive advantage. While this contraction of other industries will free up some space for future industrial development, it is not likely to yield sites that have the characteristics (e.g., area and location) necessary to support modern industrial development. In order to accommodate these new jobs, this study estimates that the City must identify approximately 2,400 acres of land appropriate for industrial development.



## TIOGA MARINE TERMINAL

SOURCE: PICTOMETRY INTERNATIONAL 2009 ,THE CITY OF PHILADELPHIA

# INDUSTRIAL LAND SUPPLY: LAND USE & REAL ESTATE

The largely obsolete physical legacy of Philadelphia's days as the Workshop of the World endures, lying prominently fallow along the Amtrak and regional rail corridors, perpetuating the falsehood that Philadelphia is a post-industrial city. As a result, many City residents believe that the vast majority of the City's current 17,800 acres of industrially-zoned land is vacant, underutilized, functionally obsolete, and/or better suited for other activity. However, a closer examination of Philadelphia's industrial lands reveal that many areas are vibrant, functional, and employment-rich. Moreover, despite high overall vacancy levels, many significant opportunities exist for future industrial development.

As previously discussed, the City of Philadelphia needs 2,400 acres of vacant or underutilized land for future industrial development in order to accommodate nearly 22,000 potential new industrial jobs. In order to determine which areas of the City can best absorb this projected growth – as well as which areas should be protected and which areas are suitable for transition to other land uses – the consultant team surveyed every parcel of land within 15 identified industrial districts, representing 89% of Philadelphia's industrially-zoned land, or 15,804 acres, and spanning the entire City, from the International Airport in the Southwest to the far Northeast.

This section of the report uses a combination of maps, charts and text to present a fine-grained exploration of Philadelphia's industrial districts and corridors. Following a concise history of the City's industrial development patterns and a discussion of the real estate and land use conditions required for modern industrial users, the varied geography of Philadelphia's fifteen industrial districts will be described.

An Atlas of Industrial Land is available for download on the Philadelphia City Planning Commission website and serves as a companion volume to this report. The Atlas provides a much more detailed examination of Philadelphia's industrial districts than the summary presented in the following pages.

## A BRIEF HISTORY OF PHILADELPHIA'S INDUSTRIAL DEVELOPMENT PATTERNS

The land use and real estate requirements of industrial businesses have changed considerably since Philadelphia's days as the Workshop of the World. In the late 1800's and the early 1900's, multistory loft factories were built in tightly knit urban manufacturing corridors along the Delaware River waterfront and interior rail lines. These areas were immediately adjacent to dense residential neighborhoods, from which a workforce typically arrived by foot. Industrial processes in multistory buildings typically used "gravity-flow" production, where the manufacturing of an item began on the top floor and continued down to lower floors until it was finished on the bottom floor, ready for transport to consumer markets via the rail siding alongside the building.

The one-story industrial building typology began to emerge in the early 1900's because of efficiency improvements in industrial production processes and changes in transportation preferences. Henry Ford's 1913 introduction of the assembly line spurred a shift toward large single-story buildings designed to accommodate horizontally-oriented industrial processes. By the mid-1950's truck transportation was replacing rail as the primary means of transportation for both raw materials and finished goods. As automobile ownership became widespread, Philadelphia's industrial workforce was increasingly able to commute to work in outlying areas. While some industrial businesses remained in the City's older industrial districts, those that sought to expand increasingly found value in relocating from their urban lofts to more modern one-story facilities built on inexpensive land with convenient highway access, off-street truck staging, landscaped grounds, and ample space for employee parking. The growing demand for single-story facilities naturally favored suburban areas over older, urban districts.

ONCE UPON AN INDUSTRIAL TIME...



SMOKESTACKS PUNCTUATED THE CITYSCAPE IN THE "OLD INDUSTRIAL" HETRAY OF MANUFACTURING AND PRODUCTION.

THE ERA OF FLAT BOXES...



GLOBAL SHIFTS IN INDUSTRIAL PRODUCTION AND INTERNATIONAL TRADE DECENTRALIZED INDUSTRIAL USES AND INCREASED THE PREVALENCE OF FACILITIES USED FOR WAREHOUSING AND DISTRIBUTION.

AN INDUSTRIAL MIXED USE FUTURE?...



INDUSTRIAL ACTIVITIES HAVE EXPANDED AND DIVERSIFIED. RESEARCH AND DEVELOPMENT LABS, GREEN INDUSTRIES, ARTISANAL WORKSHOPS, CUSTOM MANUFACTURERS, AND OTHER LIGHT INDUSTRIAL OPERATIONS ARE MORE VERSATILE.

Unlike many peer cities, Philadelphia was uniquely positioned to slow the migration of industrial companies to the suburbs. Philadelphia had vast tracts of undeveloped land around its airports in the Northeast and Southwest. Because the City sought to protect the valuable tax revenue and employment opportunities generated by the industrial sector, the Philadelphia Industrial Development Corporation (PIDC) was formed in 1958 to preserve opportunities for future industrial development by implementing an industrial urban retention effort.

In addition to providing various financing products, PIDC has developed industrial parks, based on the suburban model, in peripheral sections of the city. Over the 52 years of its existence, PIDC has transacted 2,600 acres of industrial land throughout Philadelphia. Through the use of a revolving loan fund and land bank from the City, PIDC has sought to support and retain a thriving industrial land inventory and sector. Today, only 200 acres remain in PIDC's industrial inventory, including industrial sections of The Navy Yard.

As industrial building preferences have shifted over the past 75 years, so too have the nature of industrial businesses. As discussed in previous sections of this report, "industry" describes not just manufacturing, but all processes involving the production, distribution, and repair of goods and materials. Due to increased outsourcing, today, the fundamental source of demand for industrial space is as likely to be supplies and inventories needed to support manufacturing activity or the storage of goods on their way to the final consumer as it is manufacturing activity itself. That said, one facet of American manufacturing continues to strengthen: as lower-value, labor-intensive manufacturing activity shifts to low cost competitors such as Mexico and China, higher value-added manufacturing activity is on the rise in the United States with firms increasingly utilizing robotics, automation and advanced process controls to achieve rapid delivery times and a high degree of product customization.



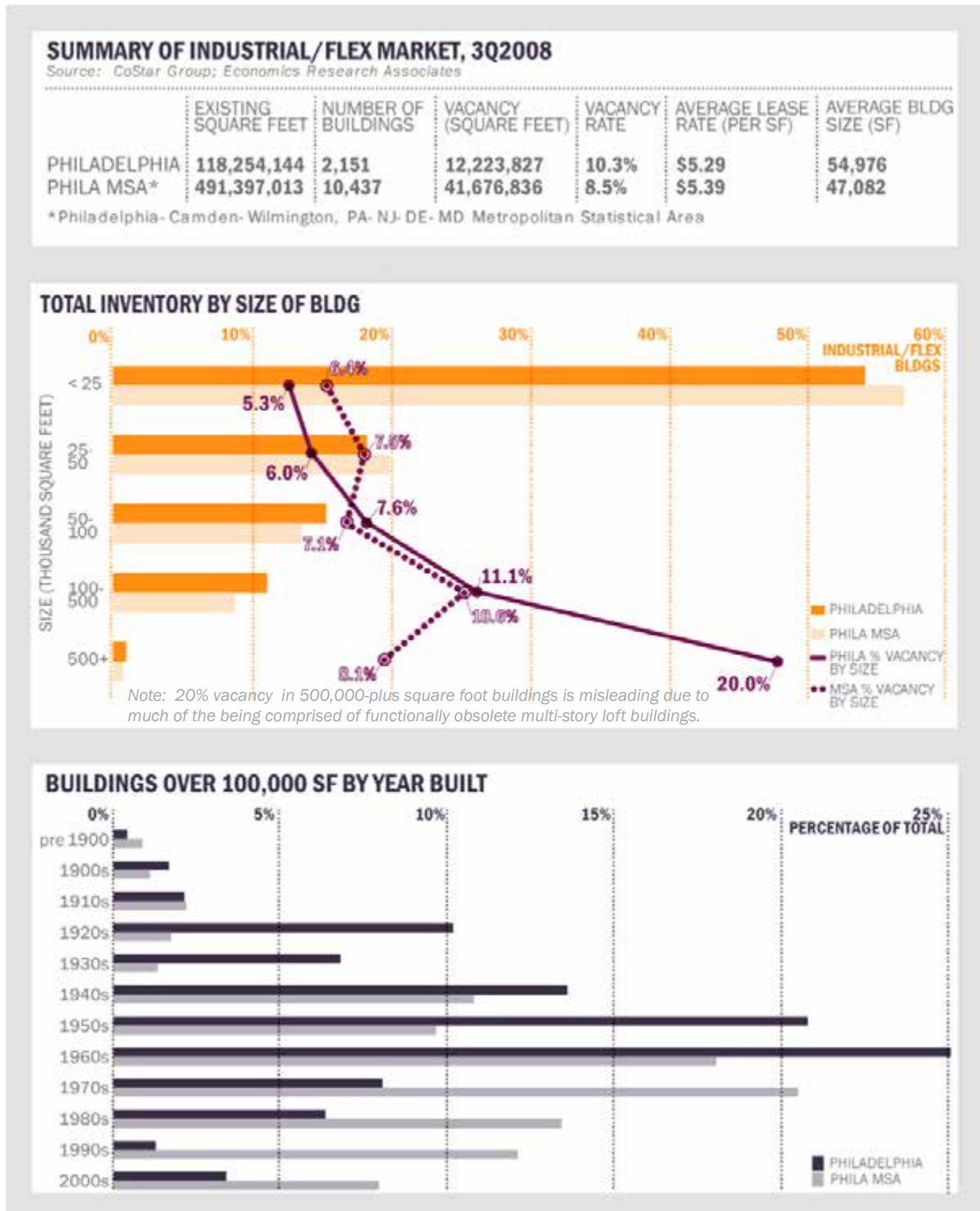
# CURRENT REAL ESTATE MARKET OVERVIEW

Today, the private real estate market recognizes more than 118 million square feet of industrial space in approximately 2,200 buildings in the City of Philadelphia (see Figure 5). It is important to note that the Philadelphia MSA, which includes the ten surrounding counties, has approximately 491 million square feet of industrial/flex space, more than four times the city's total inventory; reflecting not only the massive geographic shift in the suburbs over the last 40 years, but also reminding us that Philadelphia is at the center of a still vibrant industrial marketplace.

Following the historic growth patterns previously described, industrial buildings in Philadelphia are typically older and smaller than those built in other parts of the MSA. As shown at right, while the majority of industrial buildings in the region can be categorized as small, the suburbs offer a larger number of modern and efficient industrial buildings. In absolute numbers, there are less than 300 industrial buildings containing over 100,000 square feet in Philadelphia, compared with over 700 buildings in the MSA, excluding Philadelphia. A significant portion of these larger buildings in the city were purpose built in the 60's and 70's; many are multi-story and lack the flexibility and infrastructure requirements of modern suburban spaces.

Over 80 percent of buildings over 100,000 square feet in the City were built before 1970, compared to less than half of those in the region. These older multi-story buildings were constructed based on the requirements of industrial businesses that flourished in the first half of the last century, and are no longer suitable for the typical large-format industrial businesses that require wide column-free space, easy entry and egress, and abundant loading docks. The combination of these factors put the city's industrial stock at a competitive disadvantage to suburban facilities.

Figure 10: Summary of Industrial / Flex Market, Total Inventory by Size of Building & Buildings Over 100,000 SF By Year Built.  
Source: CoStar Group; Economics Research Associates



## COMPETITIVE SITES FOR MODERN INDUSTRY

The market for industrial land and real estate is unique in several ways when compared to other types of real estate products. Users choose their space and location based on purely pragmatic criteria – access to transportation infrastructure and workforce, number of loading docks, ceiling clearances, floor loads, etc. Factors that may drive other real estate decisions, such as image or prestige address, play a minimal role in industrial development, if any.

### REAL ESTATE REQUIREMENTS

Many industrial businesses in Philadelphia cannot reuse old buildings and typically seek out opportunities for new development. Businesses looking for new sites generally require large parcels in order to accommodate truck staging and maneuvering, employee parking, and possibly materials storage. New industrial development on sites smaller than five acres is rare. Sites should be flat to slightly rolling, with good drainage and soil characteristics suitable for industrial buildings. They should be located near other similar uses and not in dense residential areas. Irregular shapes prevent efficient use of a site.

As discussed earlier, modern industrial buildings tend to be one-story structures. Although new multistory industrial facilities have been developed in places such as Japan and Hong Kong, this development model has not yet proven to be economically viable in the United States.

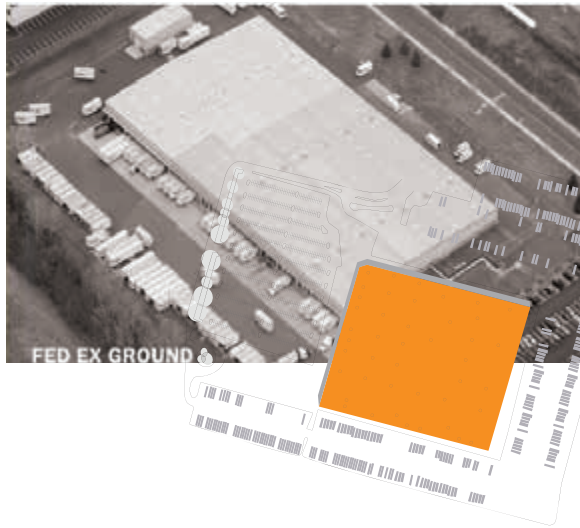


## BUILDING TYPES

*The real estate market typically categorizes industrial properties into one of three product types: warehouse/distribution, purpose-built manufacturing, and flex.*

**PURPOSE-BUILT MANUFACTURING BUILDINGS** are structures custom-designed to serve a specific manufacturing process. Accordingly, the character of these structures ranges between light manufacturing and heavy industrial depending on the materials being processed and the product being created. However, since American manufacturing focuses primarily on technology-based activities, heavy manufacturing buildings are far less common. Today's manufacturing operations typically produce fewer of the undesirable impacts, such as noise and odors, that have traditionally prompted planning and zoning efforts to separate industrial uses from other uses. They are also being designed with more flexibility and re-use potential in mind to avoid obsolescence. Buildings typically have heavy floor-load capacity and provisions for cranes. In many cases, manufacturing equipment requires greater load-bearing capacity than the actual building structure. Buildings may be as small as 25,000 square feet, but can also be more than 200,000 square feet. In the suburban model, the Floor Area Ratio (FAR) for manufacturing buildings is typically .27, with a 100,000 square foot building requiring a nine-acre site. Heavy industrial buildings typically range from 100,000 to 300,000 square feet, occupying anywhere from 10 to 30 acres.





**WAREHOUSE/DISTRIBUTION BUILDINGS** are used for the storage and distribution of goods. Types of warehouse/distribution buildings include regional warehouses, bulk warehouses, heavy distribution buildings, refrigerated distribution buildings, and rack-supported distribution buildings. The buildings are usually rectangular in shape, which is conducive to efficient loading and circulation. The buildings commonly have minimum 36-foot ceiling clearances for high stacking, and plentiful truck bays. They typically occupy large, flat sites with ample space for truck maneuvering. Easy access to transportation infrastructure is critically important, since the value added by warehouses is the ability to move goods faster with minimum storage times. In Philadelphia, FAR for a modern warehouse/distribution building is typically around .29; accordingly a small warehouse will require twenty acres of land. A larger, 500,000 square foot warehouse will require forty acres. In suburban areas, warehouses of 1,000,000 square feet are not uncommon and require sixty-plus acres; Philadelphia has one such warehouse in Northeast Philadelphia, occupied by T.J. Maxx and its approximately 1,300 employees.

**FLEX BUILDINGS**, the most common speculative industrial development, can meet the needs of a variety of industrial users. They are characterized by flexibility of interior space, as they may be used for offices, showrooms, distribution, laboratories, R&D, or light manufacturing. They tend to have more “curb appeal” than other industrial properties, given their high proportion of office space, which may be as much as 25%. In fact, in many instances, they may be mistaken for low-scale office buildings when viewed from the street. However, on the interior, these buildings have maximum flexibility in terms of space configuration and use and can be adapted for multiple tenants. Buildings can vary a great deal in size, ranging from 20,000 square feet to 100,000 square feet. In stronger markets, flex buildings may include a mezzanine or a second story. Flex spaces are most plentiful in the suburbs, where a large inventory was developed during the 1980’s; they are less common in Philadelphia (due largely to the absence of a speculative industrial development market during this period), which remained wedded to purpose-built structures. Flex buildings are job-intensive and typically require more parking than other industrial building types. In Philadelphia, the FAR for flex buildings is typically around .24, with a 75,000 square foot building requiring eight acres.



While it can be challenging to adapt older industrial buildings, particularly multi-story loft buildings, for today’s industrial needs, there are several successful examples in Philadelphia and many others elsewhere. Such adaptive reuse projects are currently the exception rather than the rule. Some of the common problems of reusing older multi-story industrial buildings include cost overruns, building code compliance, the presence of mid-floor structural supports, poor highway access, lack of parking and environmental contamination. While older industrial buildings were built with different criteria regarding industrial processes and transportation infrastructure, they can nonetheless represent interesting opportunities to realize neighborhood revitalization and local economic development goals concurrently. Many successful projects have taken advantage of the attractiveness of these architectural artifacts and their surrounding neighborhoods to non-traditional artisanal, creative, boutique, or workshop industrial users.

# INFRASTRUCTURE ACCESS

## HIGHWAY AND RAIL

Proximity to major interstate highway systems is fundamental since all industrial uses rely, in some way or another, on trucking both to receive shipments and distribute goods. In 2002, 78 percent of all imported goods (by weight) arrived by truck to Philadelphia and 62 percent left the region by truck. Forecasts for the year 2035 show little change in this distribution among the modes of freight movement. Competitive industrial sites are as close to highways as possible. Short trips from highways to industrial sites, provided that the route does not cross residential areas, may be acceptable to users if the site has good physical characteristics and access to a large labor pool.

Road conditions are also important; roads and curbs must be industrial-grade, built to withstand the wear and tear of heavily-loaded trucks and also be capable of accommodating wide turning radii. Good transportation infrastructure ensures reliable supply and reduces time to the market, thereby reducing costs and maintaining competitive businesses. In recent years, “the need for speed” in distribution, particularly of high-value goods, has made close proximity to highways of the utmost importance. Roadway conditions can be difficult to maintain, given that Philadelphia’s climate exposes pavements and structures to regular freezing, thawing and de-icing agents. Like many older cities in the Northeast and Upper Midwest, many of the City’s roads and highways are in need of major rehabilitation.

While certainly not the dominant mode it was at the turn of the 20th Century, freight rail service remains an important factor for some manufacturing and industrial processes, though most industrial users depend on it far less than trucking. Railroads are often used for manufacturing facilities, particularly heavy manufacturing facilities. The freight railroad system represents the second most important mode of transporting goods into the region, at 16 percent by weight. Only 3 percent of the goods leaving the region, however, are exported via rail. The chief imports are raw materials used to make goods which are then shipped out by truck or consumed by the regional market. Philadelphia is unique in that it is served by three Class 1 railroad systems – Norfolk Southern, CSX, and Canadian Pacific.

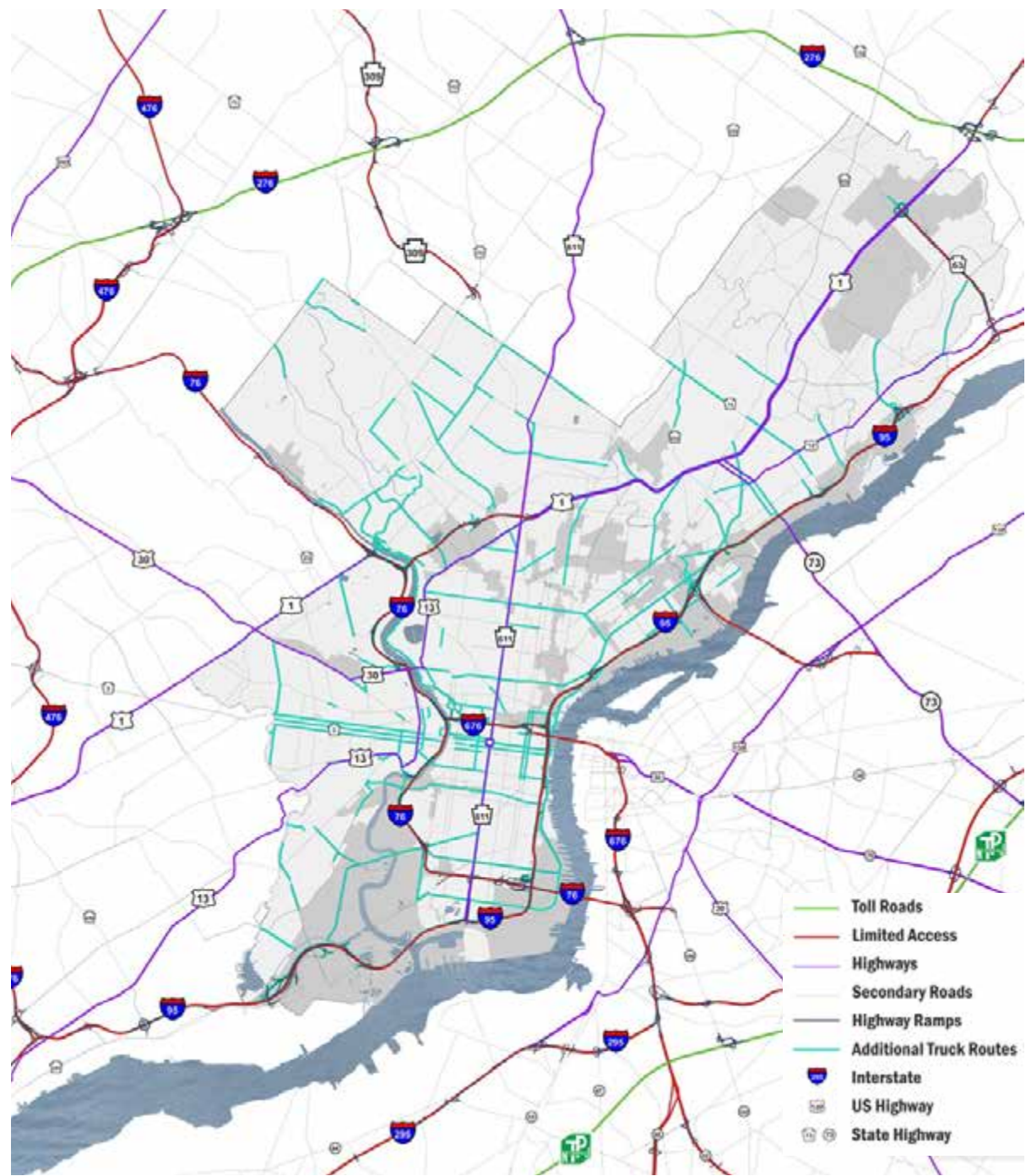


Figure 11: Philadelphia Highway Infrastructure Source: Interface Studio

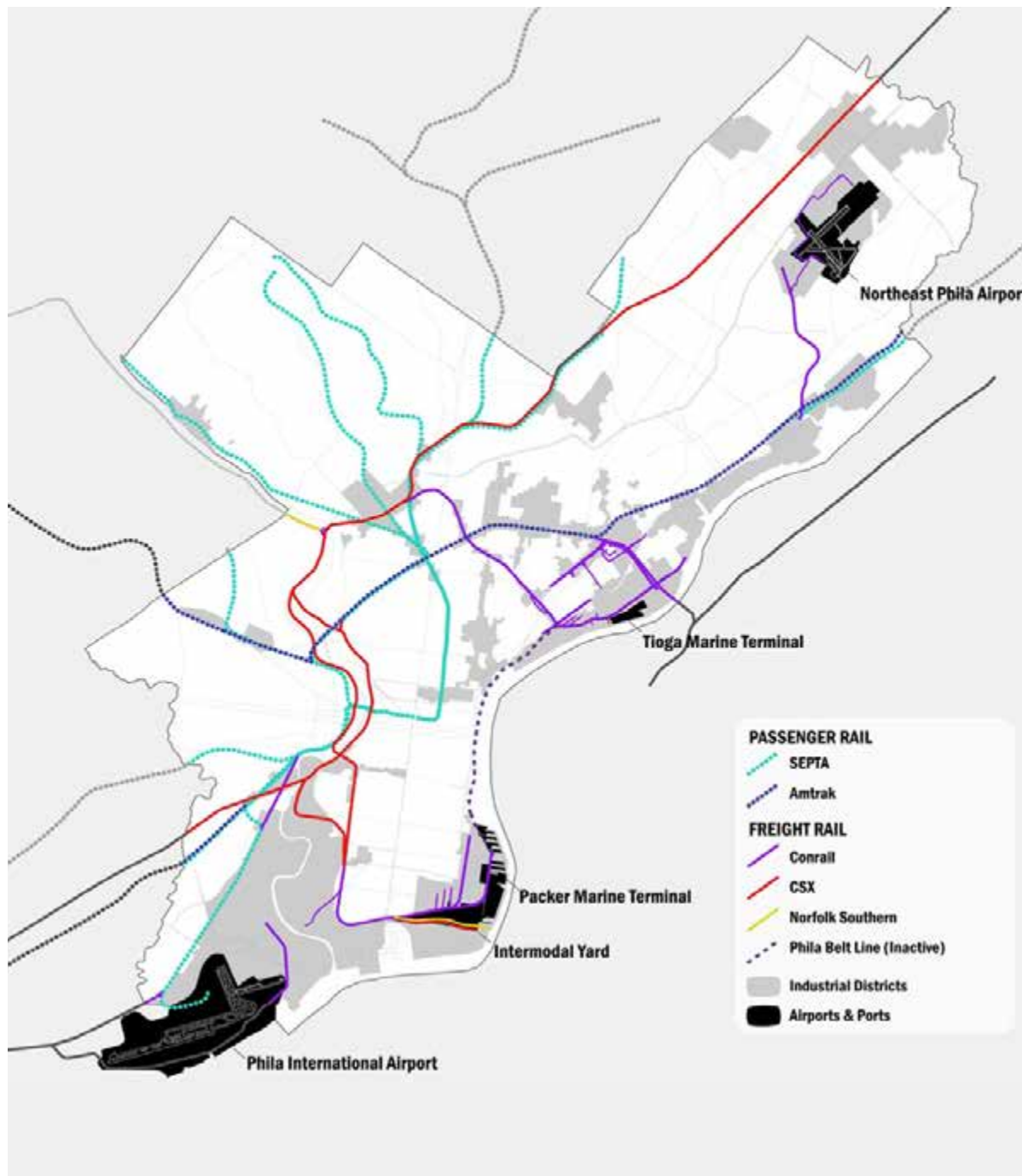


Figure 12: Philadelphia Rail Infrastructure Source: Interface Studio

### AIRPORT, PORT AND PIPELINE

In addition, many industrial users seek proximity to airports and seaports. Industrial businesses locating near an airport use cargo and passenger services regularly and those locating near seaports rely on shipping. The Philadelphia International Airport handles the fastest growing method of transporting high-value goods to Philadelphia, with preliminary projections for inbound international air value to grow by 695% by 2035.

With the expansion of the Panama Canal, it is anticipated that larger ships transporting containerized cargo from Asia will make calls directly at East Coast ports in lieu of calling at West Coast ports and distributing goods to the East Coast via rail. Many East Coast ports, including Philadelphia, are preparing for the increase in ship traffic by expanding existing terminals, deepening channels, and planning new terminals. Some forecasts predict increases of three- and four-fold over 2004 volumes by the year 2020. Currently Philadelphia is a minor player in container markets, but improvements may present an opportunity for the Port to grow.

Finally, due to the region's prominence in petroleum refining (four of the East Coast's six largest refineries are located in region), pipeline commodity transport accounts for a significant portion of goods-movement, with 30% of outbound movement, by weight.

## OTHER REQUIREMENTS

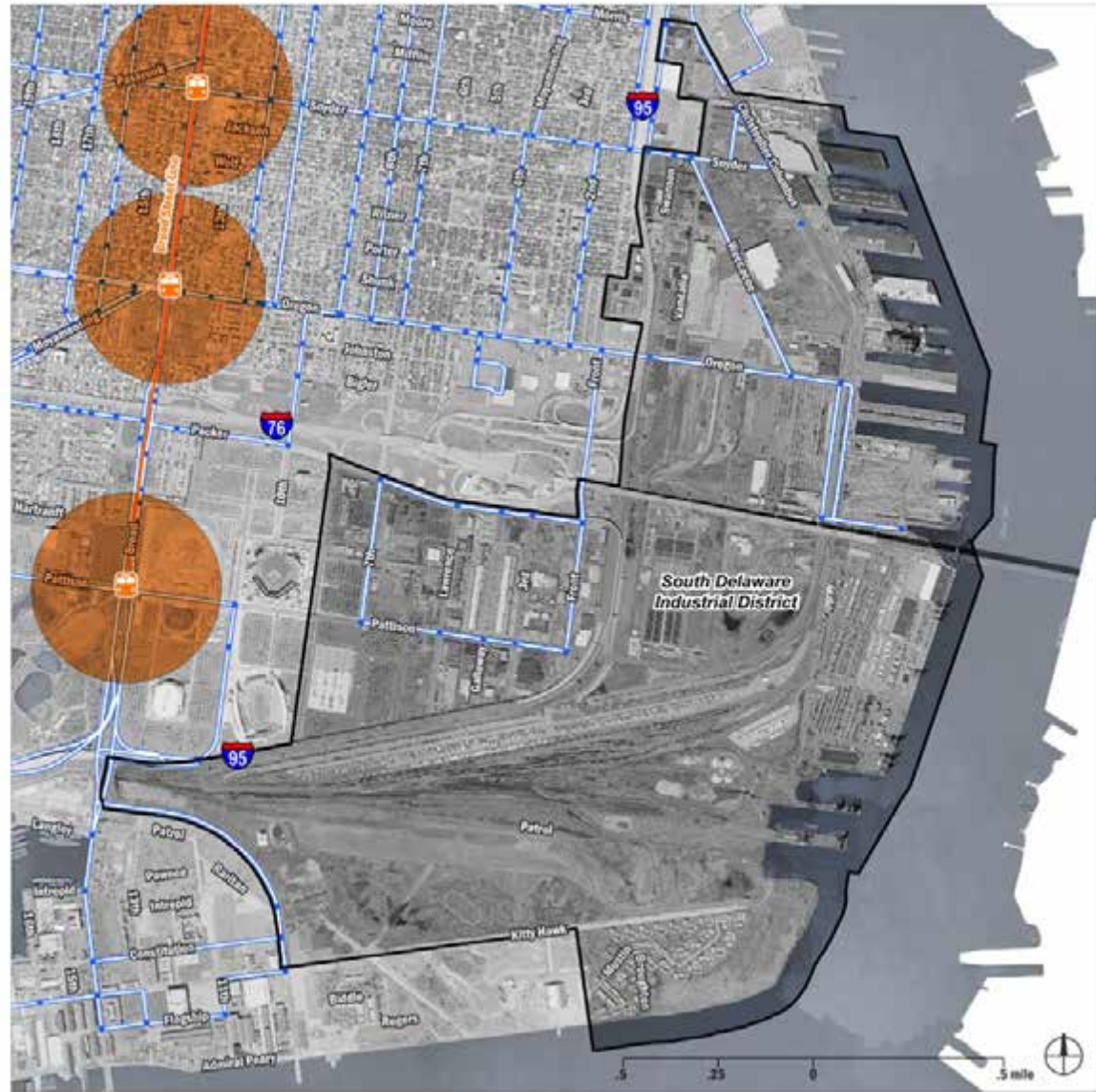
### DISTANCE FROM RESIDENTIAL AREAS

Directly adjacent housing represents a constraint for industrial activities with off-site impacts. While it is important to remember that the nature of industry has changed significantly over the past half-century – gone are the belching smokestacks – industrial businesses still seek sites where their operations will be minimally intrusive to their neighbors. Adjacent residences and schools are incompatible with many industrial businesses. Truck traffic, which may occur over a 14 or 16 hour day, is the primary reason for the land use conflict, though some industrial processes involve noise, vibration, and outdoor storage areas that increase the likelihood of nuisance complaints. Any combination of these factors can hinder business operations and force industrial establishments to relocate in response to such complaints.

### WORKFORCE ACCESS

While many industrial users are wary of adjacent residential neighborhoods, labor-intensive users such as those that occupy flex buildings or manufacturing plants prefer locations that are convenient to a deep pool of employees. Businesses also prefer sites that minimize commuting time for employees and offer public transportation options.

-  SEPTA Bus Stop
-  SEPTA Bus Route
-  Passenger Rail Line or Siding
-  District Boundary
-  Passenger Rail Station
-  5-Minute Station Walk Radius



South Delaware public transit map.  
Source: Interface Studio LLC, Hoover's

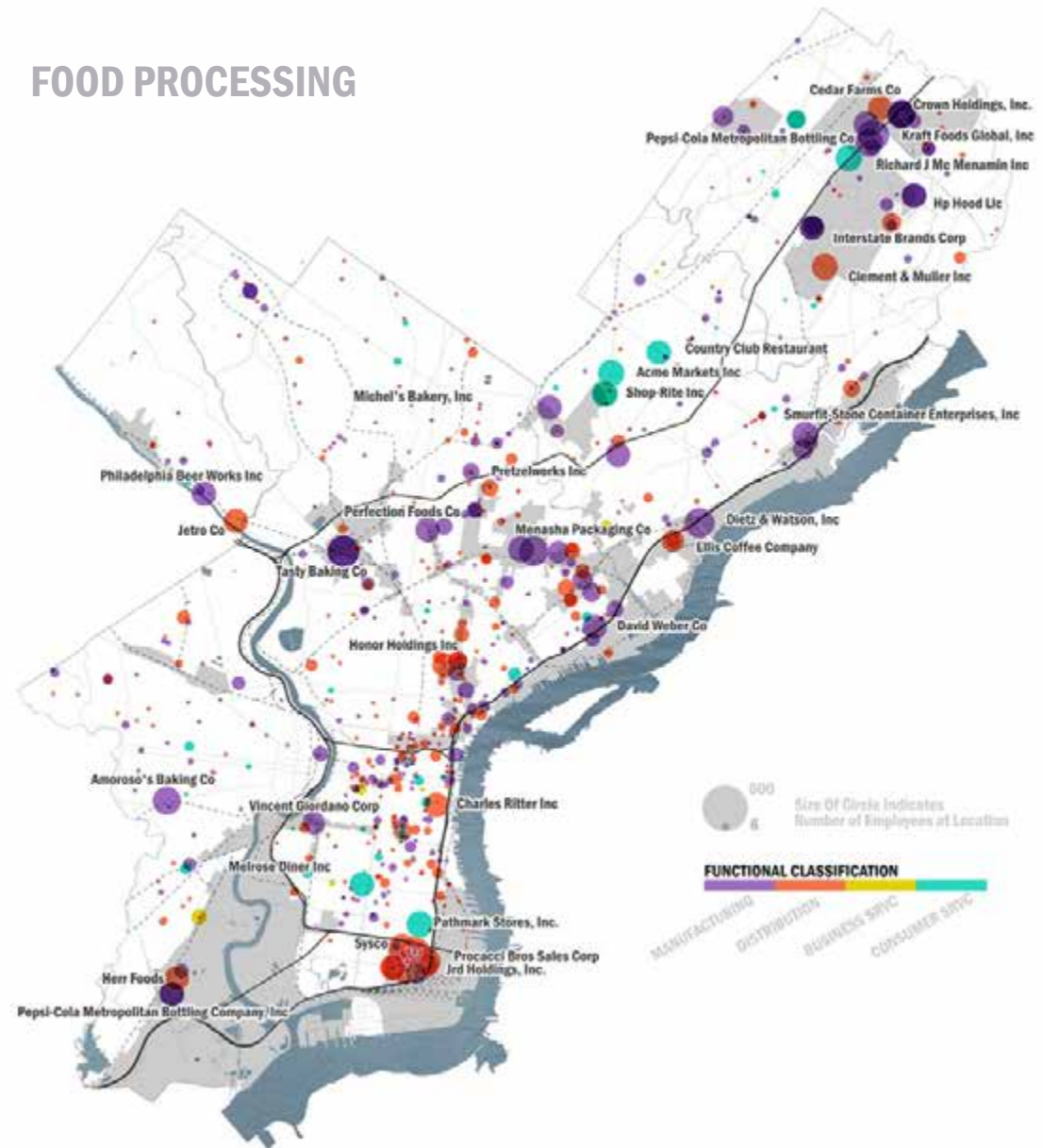
## AGGLOMERATION

Industrial businesses often take advantage of increased interaction when they locate close to one another, such as material transportation or “face-time” in product development. Agglomeration can also relate to time-sensitive products, such as perishable goods, or to the specific interdependence of firms within an industry. In addition to wanting to be close to suppliers and customers, these businesses can share a community and identity. For example, high tech firms that specialize in R&D may congregate in areas near hospitals or universities, where they can take advantage of research, professors and doctors, and pools of highly educated and skilled labor. Concentration of similar businesses also supports the development of secondary support and service firms that further contribute to the competitive advantage of industrial districts with a distinct cluster focus. No better example exists in Philadelphia than the Food Distribution Center, home to many of the region’s food processing companies. This area is also home to specialized logistics and storage firms focused exclusively on this cluster.

## INCENTIVE ZONES

A number of incentives are available to encourage economic development and job growth in Philadelphia. Federal, state and local programs correspond to specific physical geographies defined throughout the city and in many locations overlap the industrial districts surveyed as part of this study. Empowerment zones, HUD Renewal Community zones, and - formerly - state Enterprise Zones largely correspond to older, mixed industrial - residential neighborhoods found throughout north and west Philadelphia. The incentives offered to firms locating or expanding in these areas range from federal, state, and local tax credits and exemptions to employment credits to eligibility for low-interest loans.

## FOOD PROCESSING



Philadelphia Food Processing Cluster Employment: One of a series of maps illustrating citywide employment & agglomeration patterns.

Source: Interface Studio LLC, Hoover's

## PHILADELPHIA'S INDUSTRIAL DISTRICTS

Today, there are approximately 17,800 acres of industrially-zoned land in the City of Philadelphia, representing nearly 21% of the city's land area. For the purposes of this study, fifteen districts totaling 15,804 acres were identified for survey and analysis. The boundaries of the districts were initially proposed by the Philadelphia City Planning Commission based on current industrial zoning and institutional knowledge. The consultant team expanded these boundaries to further include areas of potential significance to the industrial economy in Philadelphia.

The fifteen districts vary widely in size, character, and degree of industrial utilization as well as in density, scale, and surrounding uses. The districts span the city of Philadelphia, from the International Airport in the Southwest to the far Northeast. However, there are many similarities among various districts with regard to the opportunities and challenges their geography presents. Six groupings allow the districts to be considered at a broader, more functional scale within the context of city and region – South by Southwest Waterfront, Philadelphia Inner Urban, North Philadelphia Urban, Delaware Waterfront, Northeast Suburban, Northeast Industrial District, and Other Nodes.

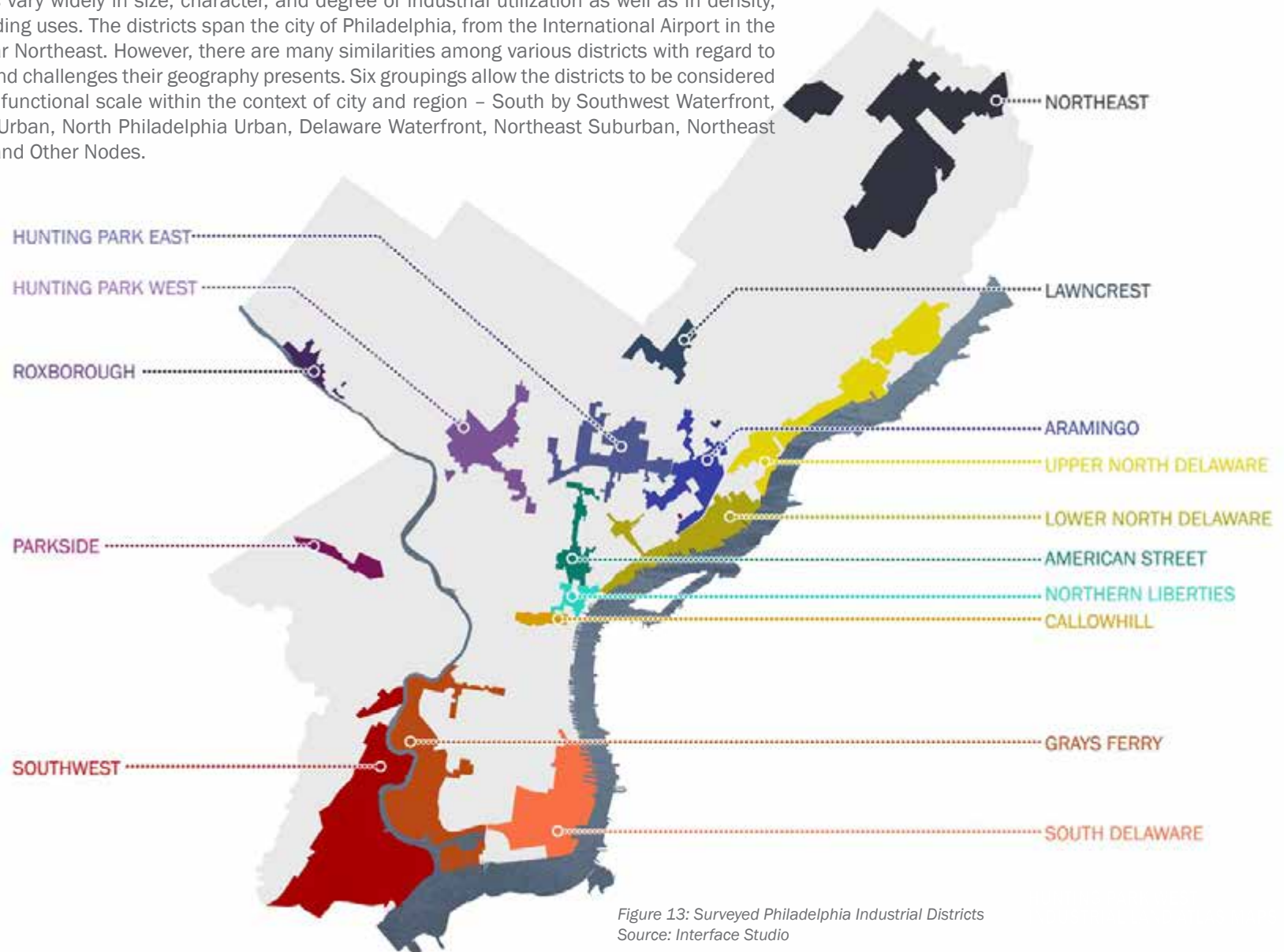


Figure 13: Surveyed Philadelphia Industrial Districts  
Source: Interface Studio



## NORTHEAST SUBURBAN

- \*stable land values
- \*campuses make better neighbors
- \*proximity to diverse labor pool
- \*higher costs, but only marginally higher benefits compared to suburbs
- \*local firm noted deficient sewer capacity
- \*isolated from central city and transit

## DELAWARE WATERFRONT

- \*I-95 adjacent (& buffers resd'l areas)
- \*several large, vacant parcels remain
- \*astride major utility infrastructure
- \*neighborhoods desire river access
- \*development pressure on land values
- \*numerous choke points coming off I-95

## NORTH PHILADELPHIA URBAN

- \*proximity to diverse labor pool
- \*strong legacy of industrial associations
- \*lower industrial rents and land values
- \*bldgs often in poor condition or obsolete
- \*limited parking and truck access
- \*high crime & indirect freeway access

## PHILADELPHIA INNER URBAN

- \*small, low-rent spaces + proximity = hotbed of workshop / artisanal
- \*uniquely close-in industrial property to Center City
- \*increasing residential & commercial pressure
- \*truck circulation difficult
- \*small parcels and multiple owners hinder land assembly and expansion

## SOUTH BY SOUTHWEST WATERFRONT

- \*excellent access: airport, port, freeways
- \*revitalizing node @ Navy Yard
- \*historically industrial land use & development patterns
- \*big box and commercial development eroding available industrial land
- \*much fill or otherwise unsuitable land
- \*higher costs, but only marginally higher benefits compared to adjacent suburbs

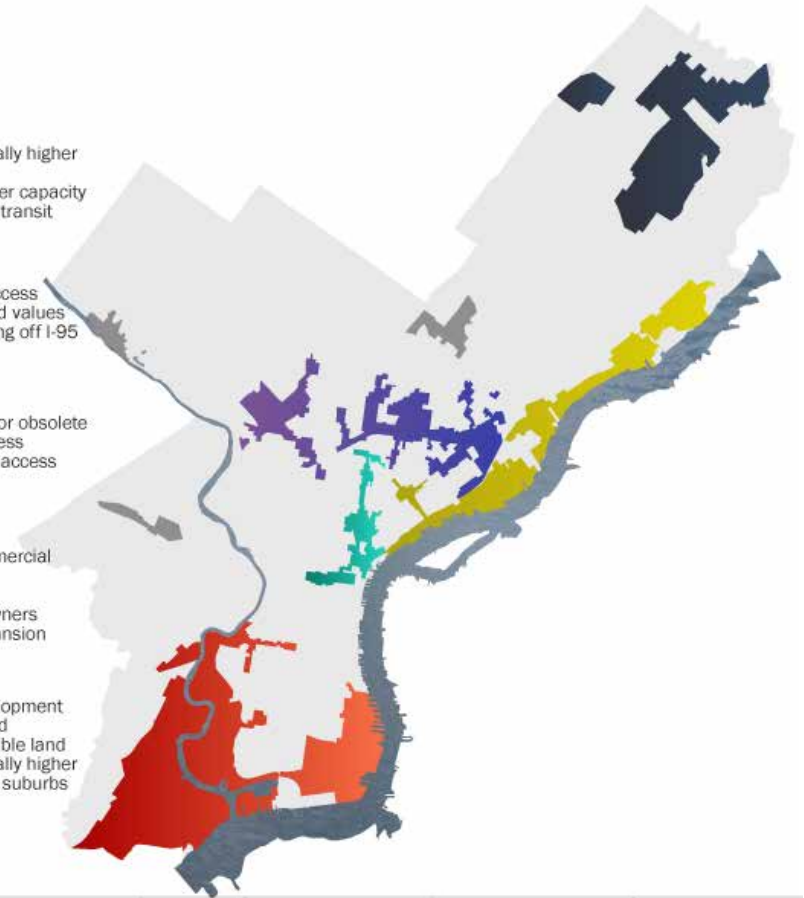


Figure 14: Industrial Area Characteristics  
Source: Interface Studio

	PARCELS	ACRES	DISTRICT SHARE	AVG INDUSTRIAL PARCEL SIZE (ALL)	50+ ACRE PARCELS	50+ ACRE PARCELS (% OF TOTAL)	AVG INDUSTRIAL BUILDING SIZE (FT <sup>2</sup> )	AVG INDUSTRIAL BUILDING AGE
<b>NORTHEAST SUBURBAN</b>	<b>420</b>	<b>3,390</b>	<b>21%</b>	<b>11.0</b>	<b>7</b>	<b>38%</b>	<b>78,792</b>	<b>1986</b>
Northeast	420	3,390	21%	11.0	7	38%	78,277	1986
<b>DELAWARE WATERFRONT</b>	<b>1,451</b>	<b>2,361</b>	<b>15%</b>	<b>4.6</b>	<b>10</b>	<b>36%</b>	<b>35,930</b>	<b>1954</b>
Upper North Delaware	732	1,413	9%	3.3	7	32%	44,000	1958
Lower North Delaware	719	948	6%	5.8	3	42%	27,860	1950
<b>NORTH PHILADELPHIA URBAN</b>	<b>6,660</b>	<b>2,074</b>	<b>12%</b>	<b>2.2</b>	<b>2</b>	<b>6%</b>	<b>48,381</b>	<b>1947</b>
Aramingo	2,757	545	3%	1.2	0	0%	29,324	1939
Hunting Park East	2,760	821	5%	1.8	0	0%	44,430	1949
Hunting Park West	1,143	708	4%	3.5	2	17%	71,389	1953
<b>PHILADELPHIA INNER URBAN</b>	<b>4,924</b>	<b>480</b>	<b>4%</b>	<b>0.4</b>	<b>0</b>	<b>0%</b>	<b>17,952</b>	<b>1930</b>
American Street	3,242	253	2%	0.4	0	0%	17,174	1938
Northern Liberties	1,338	113	1%	0.2	0	0%	15,388	1926
Callowhill	344	115	1%	0.5	0	0%	21,294	1926
<b>SOUTH BY SOUTHWEST WATERFRONT</b>	<b>2,104</b>	<b>6,755</b>	<b>43%</b>	<b>14.6</b>	<b>25</b>	<b>59%</b>	<b>80,428</b>	<b>1959</b>
South Delaware	143	1,661	11%	10.9	8	55%	99,904	1974
Grays Ferry	1,428	1,946	12%	13.0	7	72%	72,675	1945
Southwest	533	3,148	20%	20.0	10	54%	68,706	1985*
<b>OTHER</b>	<b>554</b>	<b>744</b>	<b>4%</b>	<b>7.0</b>	<b>2</b>	<b>28%</b>	<b>88,812</b>	<b>1950</b>
Lawncrest	181	380	2%	16.2	2	55%	188,868	1952*
Parkside	290	186	1%	1.3	0	0%	23,610	1950
Roxborough	83	177	1%	3.6	0	0%	53,957	1952*
<b>ALL DISTRICTS</b>	<b>16,113</b>	<b>15,804</b>	<b>100%</b>	<b>5.0</b>	<b>46</b>	<b>41%</b>	<b>47,576</b>	<b>1950</b>

# PHILADELPHIA INDUSTRIAL DISTRICTS:

# SOUTH BY SOUTHWEST WATERFRONT

The three most southerly districts – an area described here as the “South By Southwest Waterfront” consisting of the Southwest, Grays Ferry, and South Delaware districts – enjoy an access “trifecta” of adjacency to the Philadelphia International Airport, the Packer Marine Terminal and its associated piers, and both the I-95 and I-76 freeways. This excellent access has also been the cause of an ongoing erosion of historically industrial land by big box and commercial development. Some of the land area, such as Mud Island along the lower Schuylkill River, is unsuitable for virtually any type of development because it consists largely of fill dredged from Delaware River shipping channels, or is marshy and susceptible to flooding. Nonetheless, a dense complex of refineries, tank farms, and shipbuilding cranes remain clustered here near the mouth of the Schuylkill River and serve as a gateway when entering the City from the south.

**TOTAL AREA: 6,755 ACRES**

**TARGET CLUSTER EMPLOYMENT: 13,183**

**AVERAGE PARCEL SIZE: 14.6 ACRES**



**SOUTHWEST**  
**GRAYS FERRY**  
**SOUTH DELAWARE**

# SOUTHWEST

## DISTRICT SIZE

Ranks 2nd at 3,148 acres in 533 properties, including the majority of Philadelphia International Airport

## LAND USE

Dominant land uses are Industrial (52%), Transportation (24%), Vacant (13%)

## VACANCY

Building vacancy is 3%. Land vacancy is 13% (20% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 1st at 20 acres average

## BUILDINGS

Average building size is 71,159 square feet; average year built is 1986

## RECENT DEVELOPMENTS

Philadelphia Regional Produce market is relocating to a new 677,000 square foot facility on Essington Avenue and 67th Street

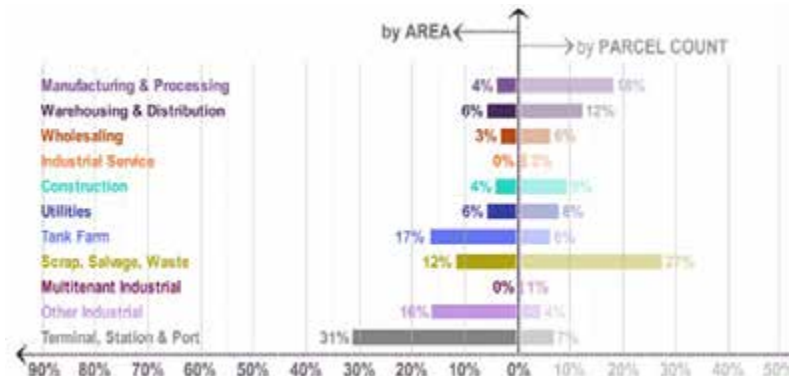


Figure 15: Surveyed Industrial Land Uses and Profile of the Southwest Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# GRAYS FERRY

## DISTRICT SIZE

Ranks 3rd at 1,946 acres in 1,482 properties

## LAND USE

Dominant land use is Industrial (81%), followed by Vacant (11%)

## VACANCY

Building vacancy is 9%. Land vacancy is 9% (30% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 3rd at 13 acres average

## BUILDINGS

Average building size is 71,756 square feet; average year built is 1945

## RECENT DEVELOPMENTS

New Tastykake facilities have been built adjacent to Girard Point, and DuPont has announced the closure of the Marshall Labs facility on Grays Ferry and 34th Street

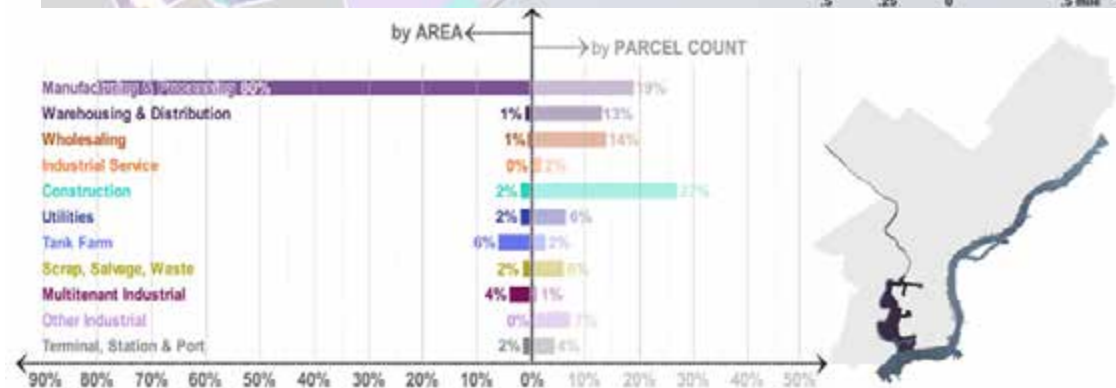
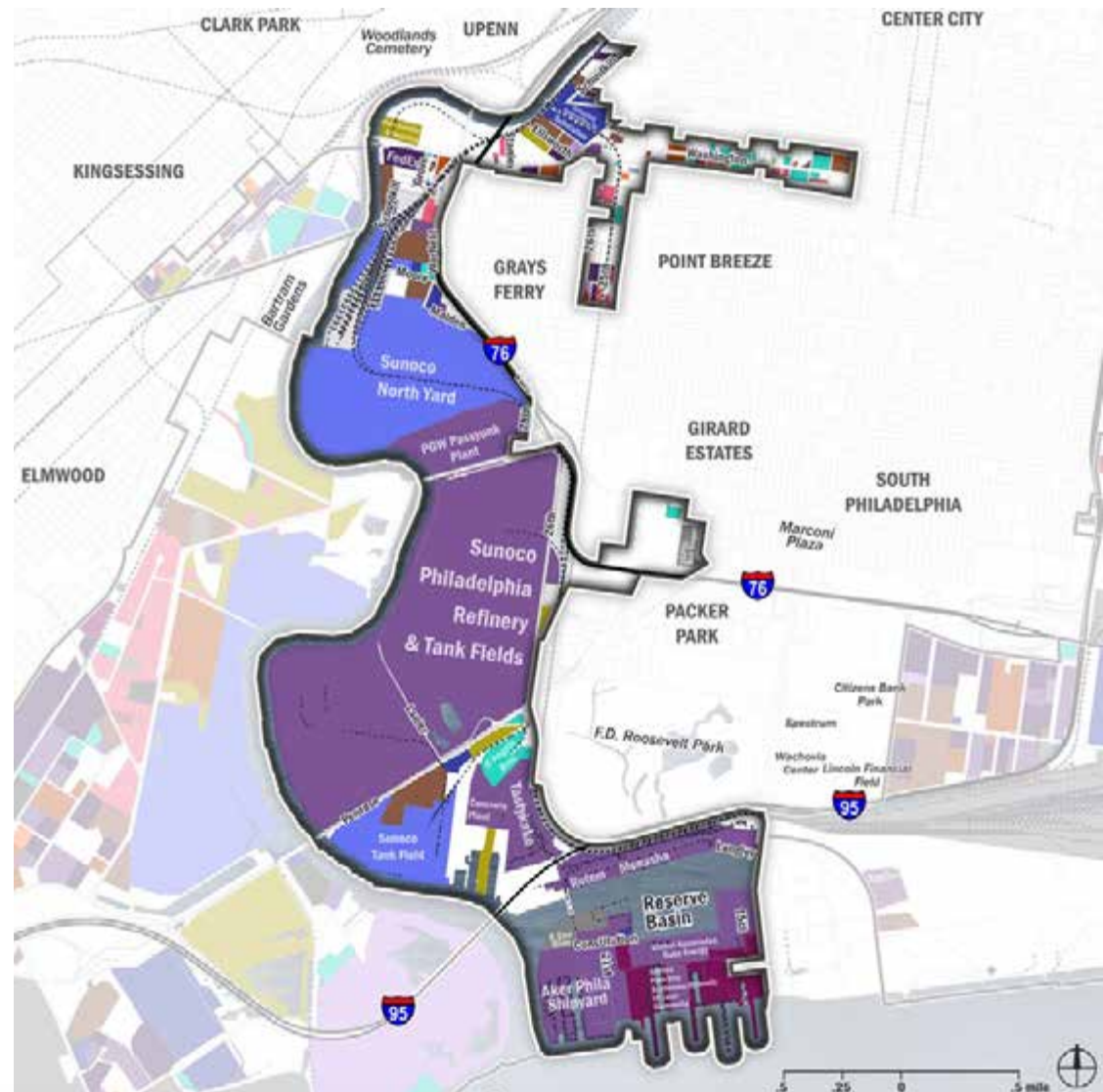


Figure 16: Surveyed Industrial Land Uses and Profile of the Grays Ferry Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# SOUTH DELAWARE

## DISTRICT SIZE

Ranks 4th at 1,661 acres in 143 properties

## LAND USE

Dominant land uses are Transportation (35%), Vacant (33%), Industrial (21%), and Parking (7%)

## VACANCY

Building vacancy is 2%. Land vacancy is 33% (24% of this is not zoned industrial and another 56% of this vacancy is reserved for future port and intermodal expansion)

## INDUSTRIAL PARCEL SIZE

Ranks 5th at 10.9 acres average

## BUILDINGS

Average building size is 86,237 square feet; average year built is 1974

## RECENT DEVELOPMENTS

Hyundai Rotem plant under construction at Weccacoe and Wolf Street, Sysco and Samuels and Son, both food processors, have expanded their facilities

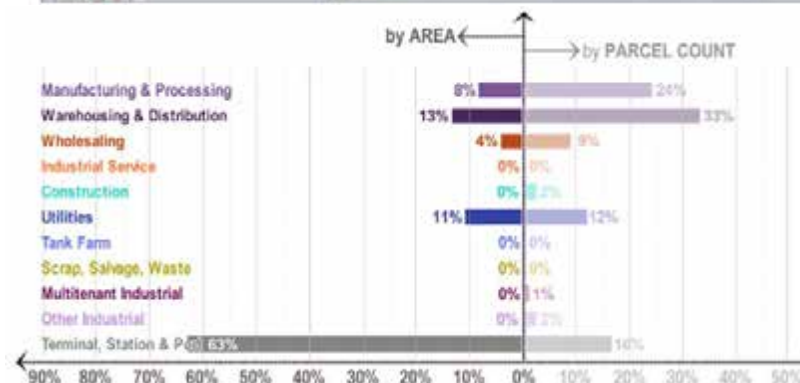
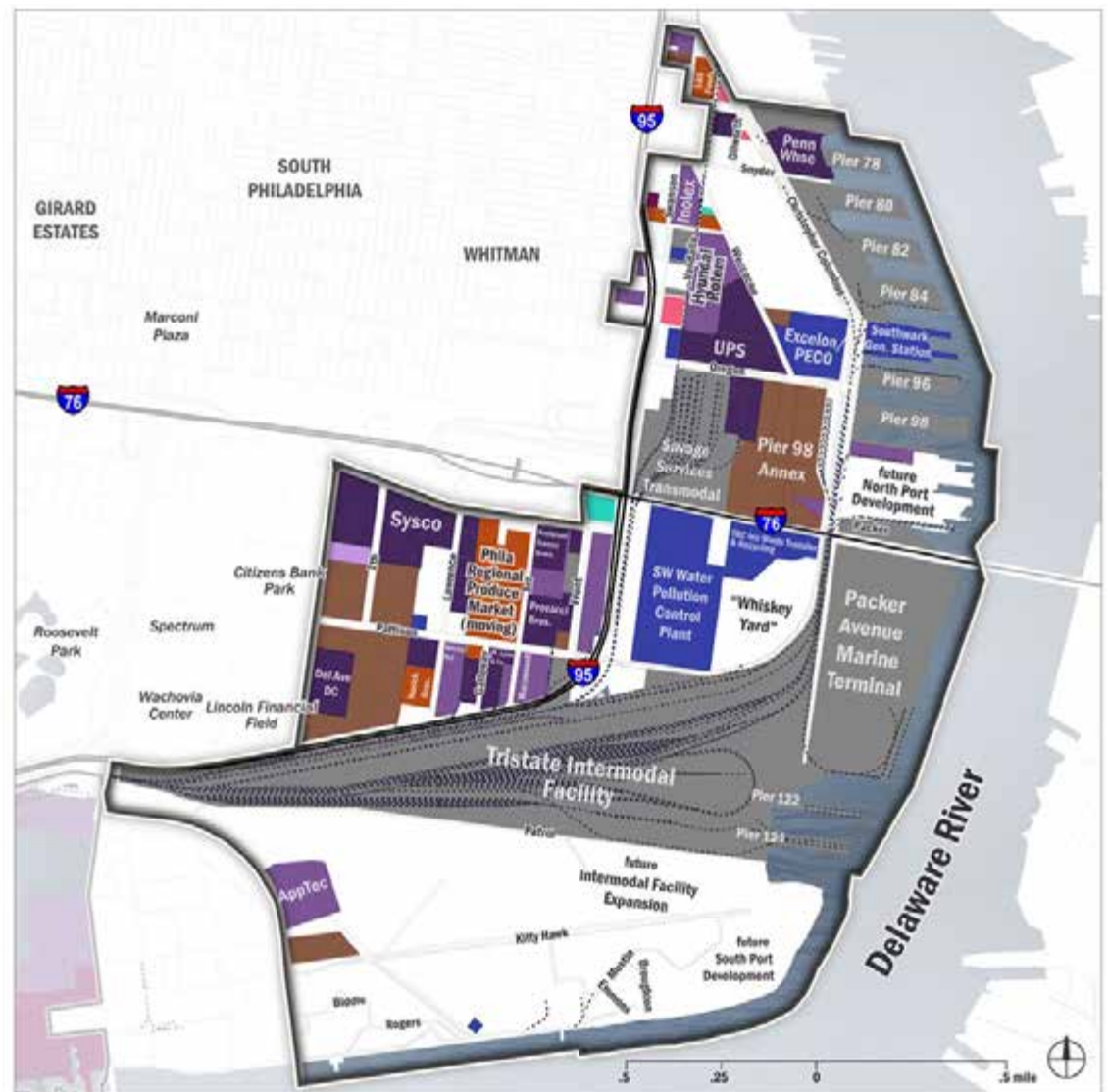


Figure 17: Surveyed Industrial Land Uses and Profile of the South Delaware Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# INNER URBAN

Just north of Center City Philadelphia lay three districts that could be described as Philadelphia's Inner Urban industrial areas – Callowhill, Northern Liberties, and American Street. Their unique typology of industrially-zoned land with close-in access to the central business district, and stock of small and often relatively low-rent workshop, warehouse, and loft spaces make them ideal for certain industries such as equipment repair, construction supply, and business to business fabrication. However, businesses in these districts also suffer within a dense urban grid of narrow streets, making truck circulation difficult.

The parcel assembly and acquisition often necessary for business expansion can also be problematic and even impossible due to separate ownership of a great number of small parcels. In addition, this area has seen much residential and commercial redevelopment and interest in recent years, resulting in challenging conditions for maintaining larger-scale industrial uses, both in terms of compatibility of use and economics of land price.

**TOTAL AREA: 480 ACRES**

**TARGET CLUSTER EMPLOYMENT: 3,747**

**AVERAGE PARCEL SIZE: .4 ACRES**



**AMERICAN STREET**

**NORTHERN LIBERTIES**

**CALLOWHILL**

# CALLOWHILL

## DISTRICT SIZE

Ranks 14th at 115 acres in 344 properties

## LAND USE

Evenly mixed land uses include Industrial (23%), Institutional (18%), Commercial (17%), Parking (11%), and Vacant (10%)

## VACANCY

Building vacancy is 18%, due to large, vacant multi-story loft buildings. Land vacancy is 9% (14% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 13th at .5 acres average

## BUILDINGS

Average building size is 21,788 square feet; average year built is 1926

## RECENT DEVELOPMENTS

FedEx recently shuttered its distribution center on Spring Garden Street

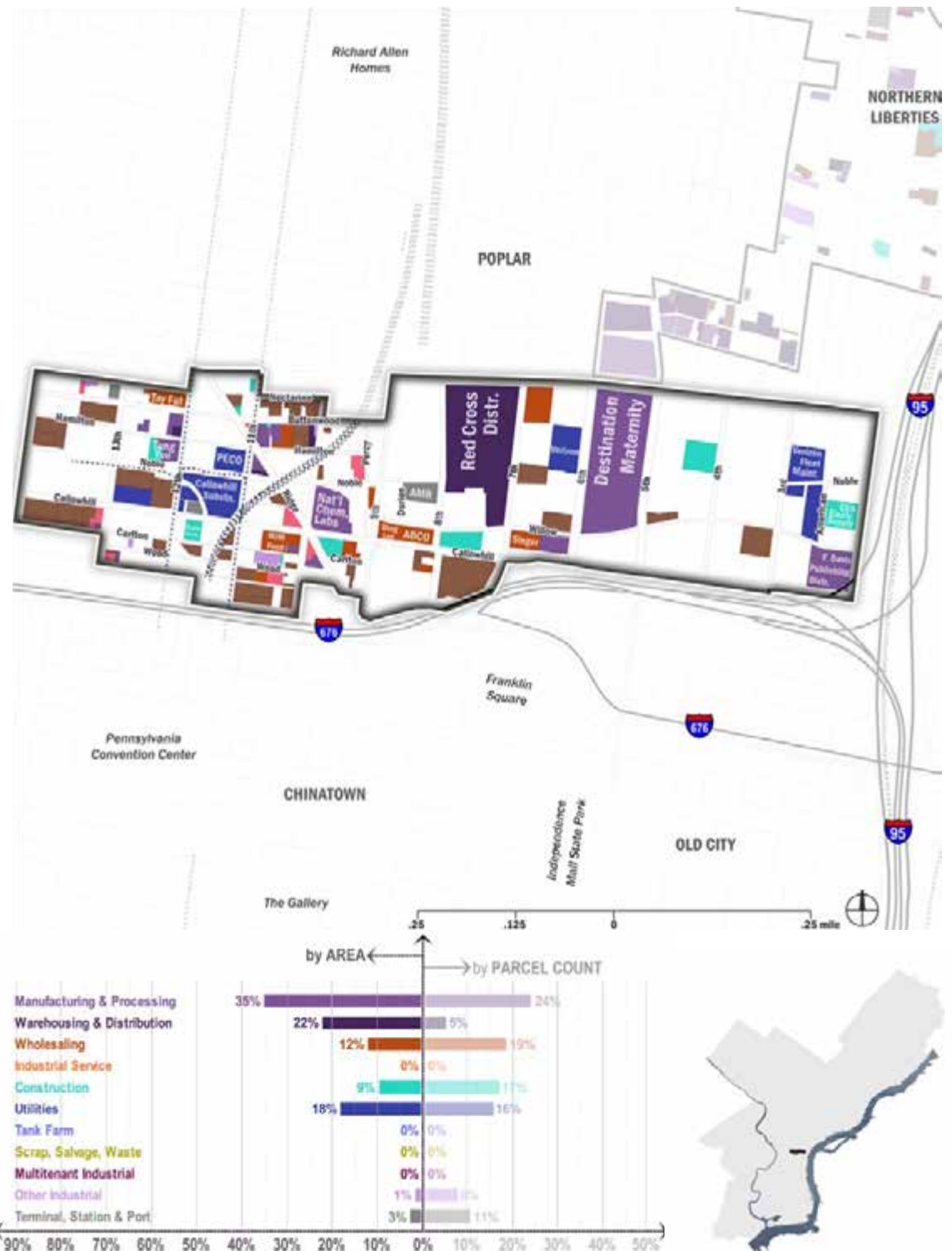


Figure 18: Surveyed Industrial Land Uses and Profile of the Callowhill Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# NORTHERN LIBERTIES

## DISTRICT SIZE

Ranks 15th at 113 acres in 1,338 properties

## LAND USE

The balanced land uses are Industrial (25%), Residential (23%), and Vacant (22%)

## VACANCY

Building vacancy is 14%. Land vacancy is 22% (31% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 15th at .2 acres average

## BUILDINGS

Average building size is 15,815 square feet; average year built is 1926

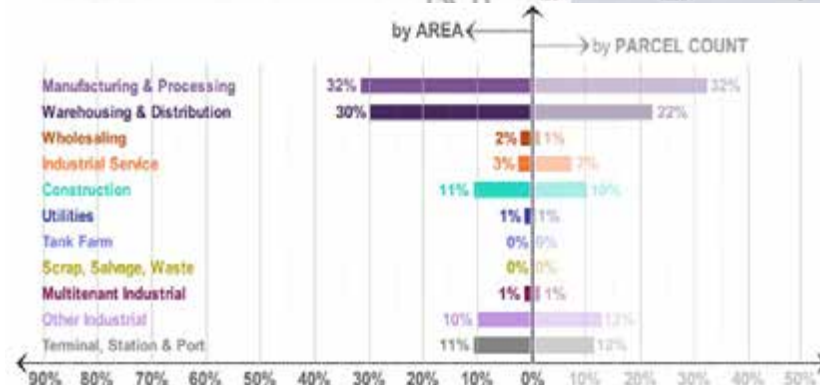


Figure 19: Surveyed Industrial Land Uses and Profile of the Northern Liberties Industrial District. Note: White space indicates non-industrial use, including vacancy.

Source: Interface Studio



# AMERICAN STREET

## DISTRICT SIZE

Ranks 11th at 253 acres in 3,242 properties

## LAND USE

Dominant land uses are Industrial (37%), Vacant (25%), and Residential (19%)

## VACANCY

Building vacancy is 8%. Land vacancy is 24% (31% of this is not zoned industrial)

## PARCEL SIZE

Ranks 14th at .4 acres average

## BUILDINGS

Average building size is 17,437 square feet; average year built is 1938

## RECENT DEVELOPMENTS

Philadelphia Creative and Performing Arts High School is currently under construction on Front and Berks Streets

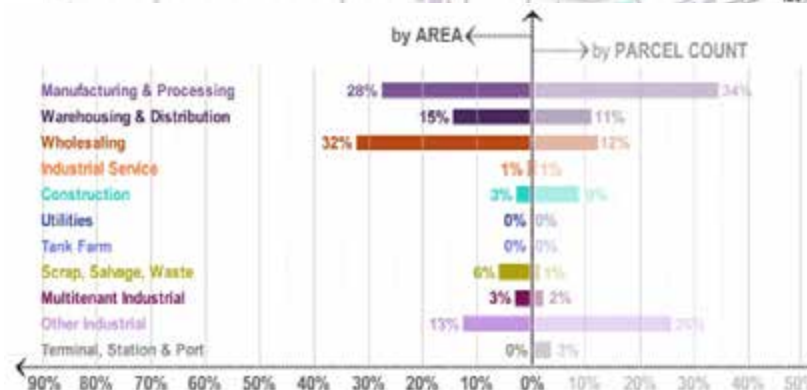
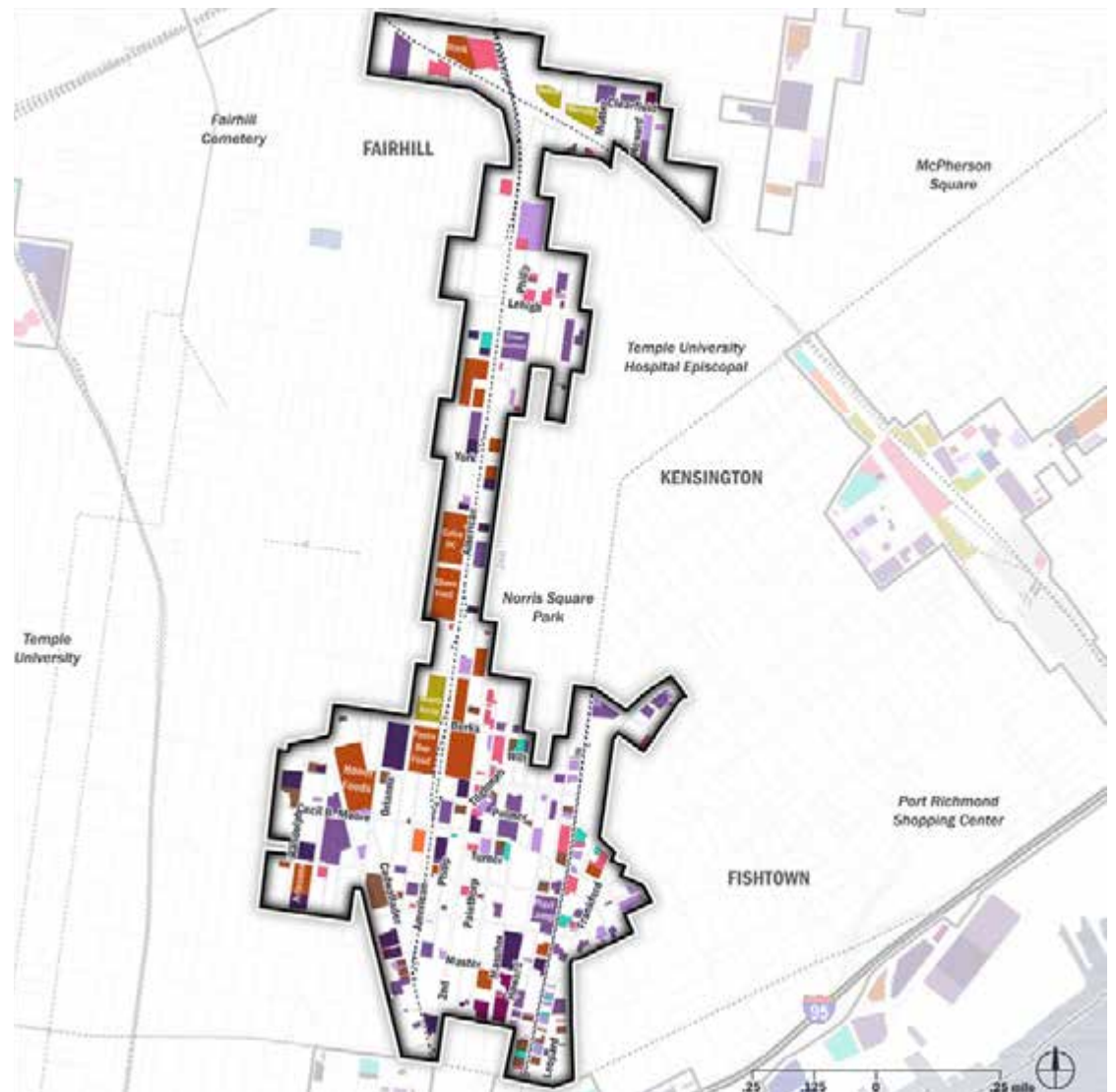


Figure 20: Surveyed Industrial Land Uses and Profile of the American Street Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# NORTH PHILADELPHIA URBAN

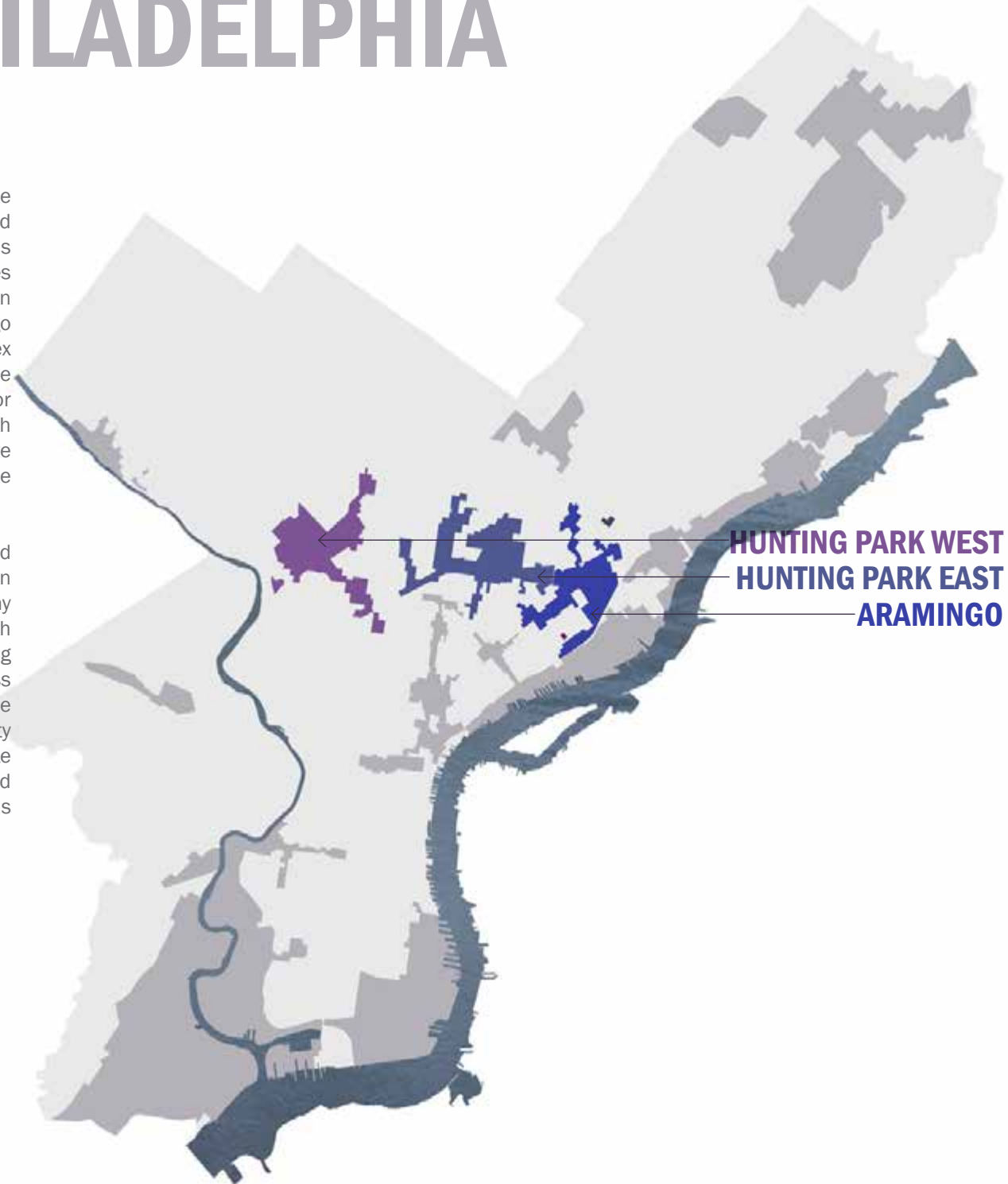
Further north are three more districts that comprise a broad swath of industrial terrain strung out and clustered around the vestiges of Philadelphia's extensive freight rail network that criss-crosses North Philadelphia. The North Philadelphia Urban districts – Hunting Park East & West, and Aramingo – once lay at the core of a mighty industrial complex that garnered the city the title of “Workshop of the World”. Multi-story factory lofts a century old or more are ubiquitous here and sit cheek by jowl with dense urban rowhouse neighborhoods, which were often built by the factory owners in order to provide worker housing.

One such example is the residential neighborhood surrounding the former Budd Company factory in what is now the Hunting Park West district. Many industrial firms in this area are “legacy” firms with a long history of operation. They enjoy a strong heritage of industrial associations and easy access to a diverse labor pool. These districts also straddle some of the most disinvested areas of the city and suffer high crime rates. Aging, often obsolete facilities and relatively poor freeway access add to the challenges for modern industrial concerns located here.

**TOTAL AREA: 2,074 ACRES**

**TARGET CLUSTER EMPLOYMENT: 11,136**

**AVERAGE PARCEL SIZE: 2.2 ACRES**



**HUNTING PARK WEST**  
**HUNTING PARK EAST**  
**ARAMINGO**

# HUNTING PARK WEST

## DISTRICT SIZE

Ranks 8th at 708 acres in 1,143 properties

## LAND USE

Dominant land uses are Industrial (38%), Vacant (17%), and Transportation (16%)

## VACANCY

Building vacancy is 21%, due largely to the vacant former Budd Company buildings. Land vacancy is 15% (49% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 8th at 3.5 acres average

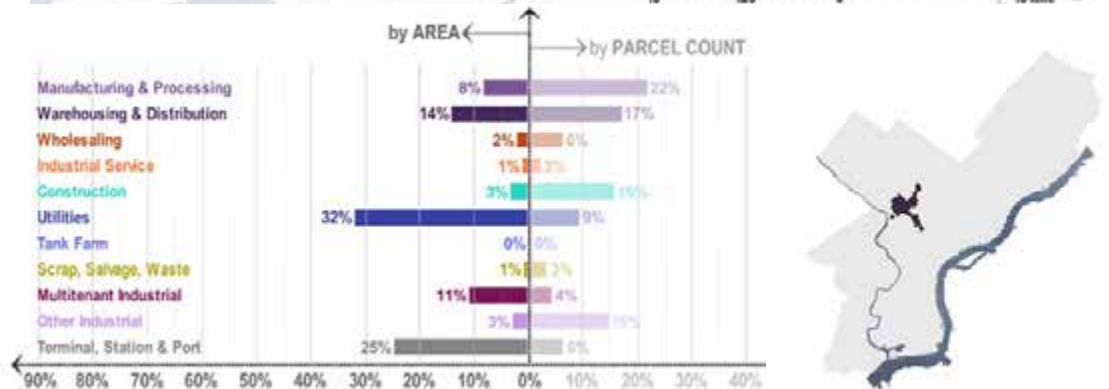
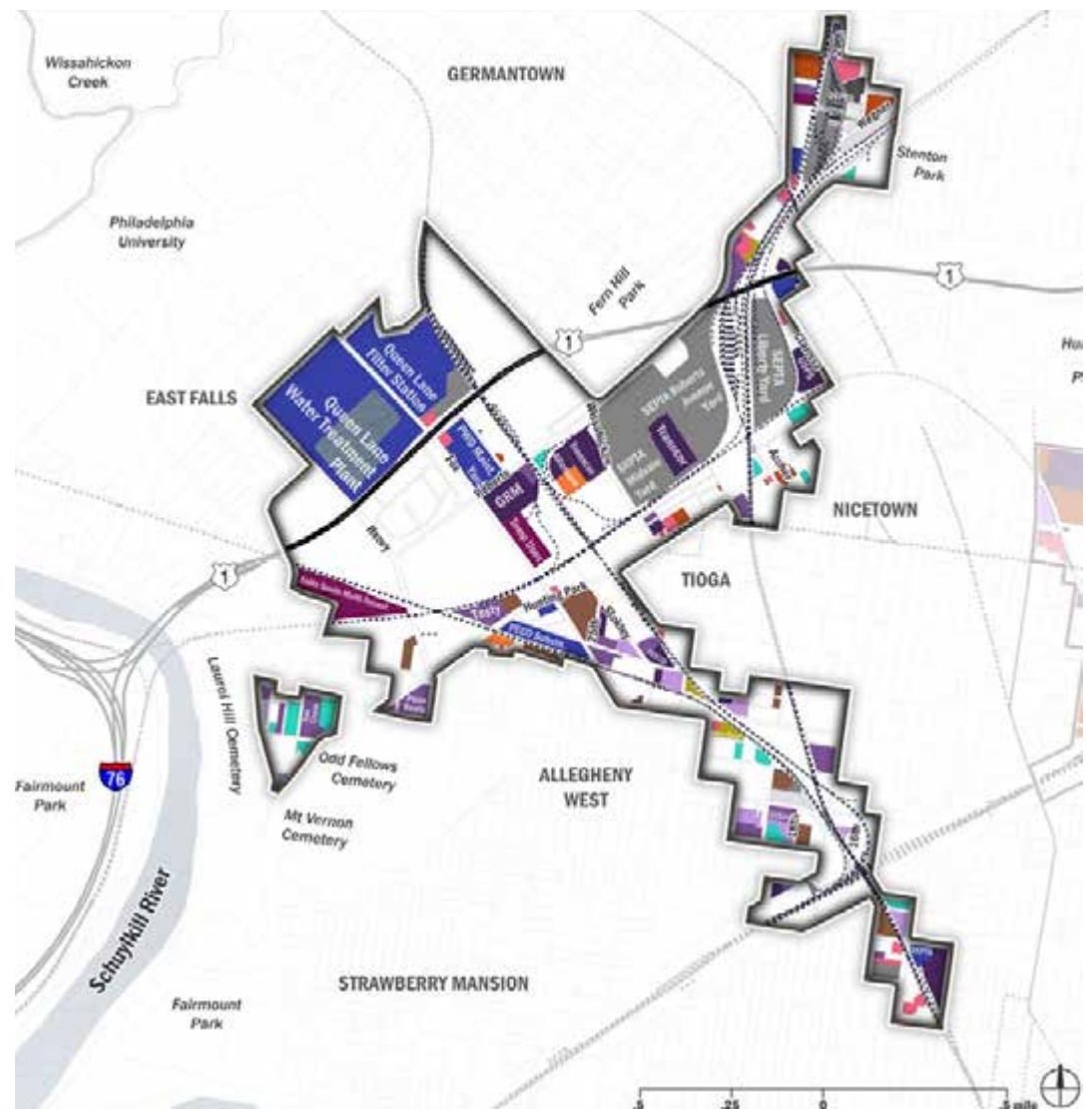
## BUILDINGS

Average building size is 78,311 square feet; average year built is 1953

## RECENT DEVELOPMENTS

A new Ray and Joan Kroc Corps Community Center is currently under development, and Tastykake is relocating its bakery and warehouse from this district to new facilities in the Navy Yard

Figure 21: Surveyed Industrial Land Uses and Profile of the Hunting Park West Industrial District. Note: White space indicates non-industrial use, including vacancy.  
Source: Interface Studio



# HUNTING PARK EAST

## DISTRICT SIZE

Ranks 7th at 821 acres in 2,760 parcels

## LAND USE

Dominant land use is Industrial (58%), followed by Vacant (10%), Institutional (9%), and Residential (8%)

## VACANCY

Building vacancy is 8%. Land vacancy is 10% (2% of this is not zoned industrial).

## INDUSTRIAL PARCEL SIZE

Ranks 10th at 1.8 acres average

## BUILDINGS

Average building size is 44,086 square feet; average

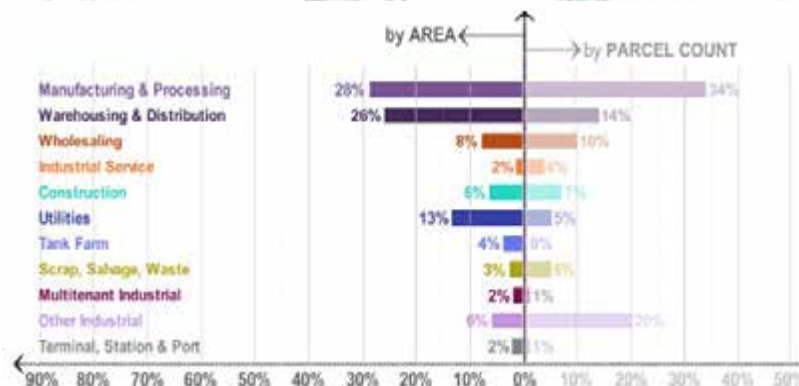
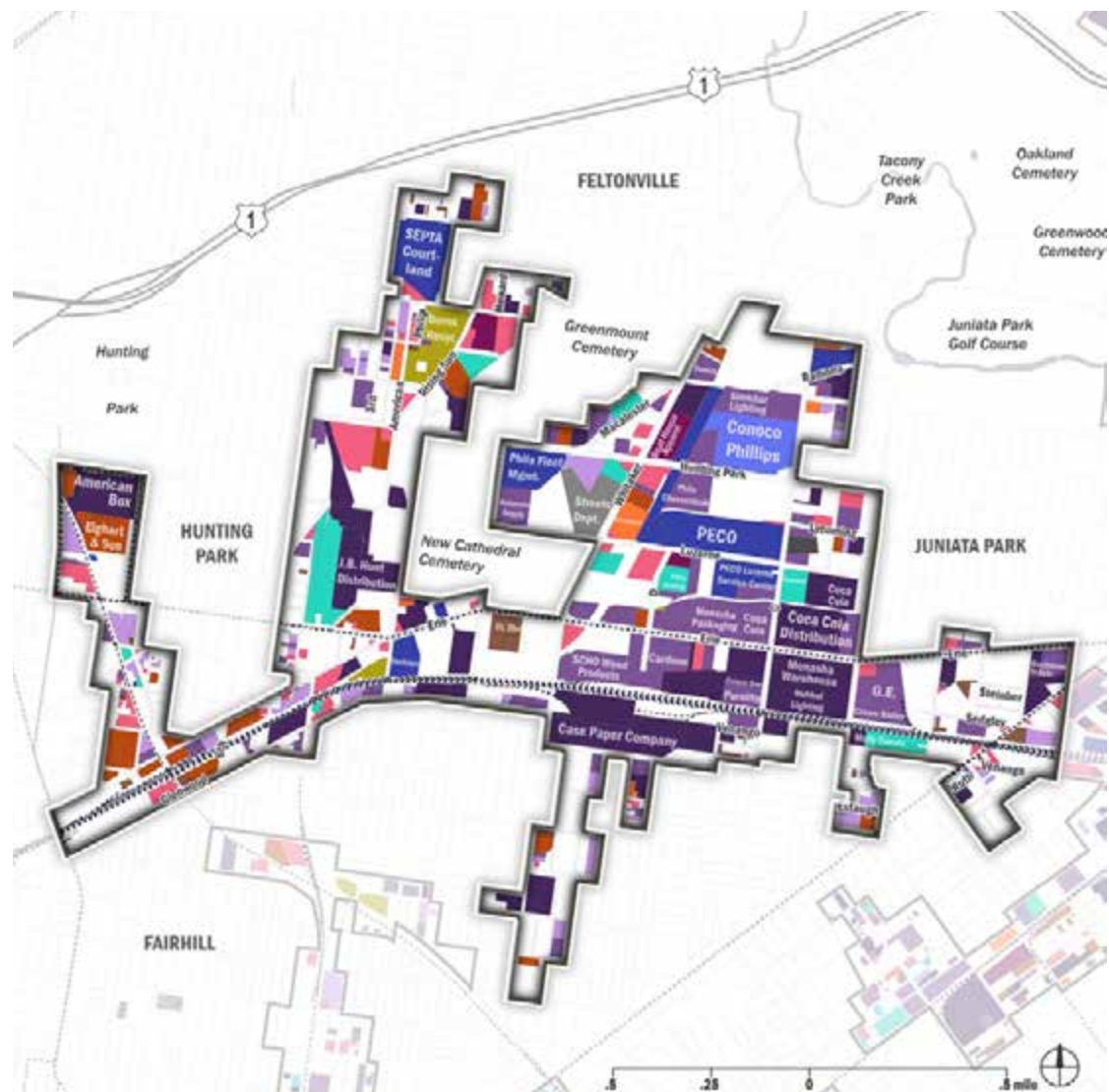


Figure 22: Surveyed Industrial Land Uses and Profile of the Hunting Park East Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# ARAMINGO

## DISTRICT SIZE

Ranks 9th at 545 acres in 2,757 properties

## LAND USE

Dominant land use is Industrial (49%), followed by Residential (13%), Vacant (12%), and Auto (10%)

## VACANCY

Building vacancy is 6%. Land vacancy is 12% (15% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 12th at 1.2 acres average

## BUILDINGS

Average building size is 29,287 square feet; average year built is 1939

## RECENT DEVELOPMENTS

PennDOT is planning to reconfigure the I-95/Betsy Ross interchange to allow more direct access to the Betsy Ross Bridge.



Figure 23: Surveyed Industrial Land Uses and Profile of the Aramingo Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# DELAWARE WATERFRONT

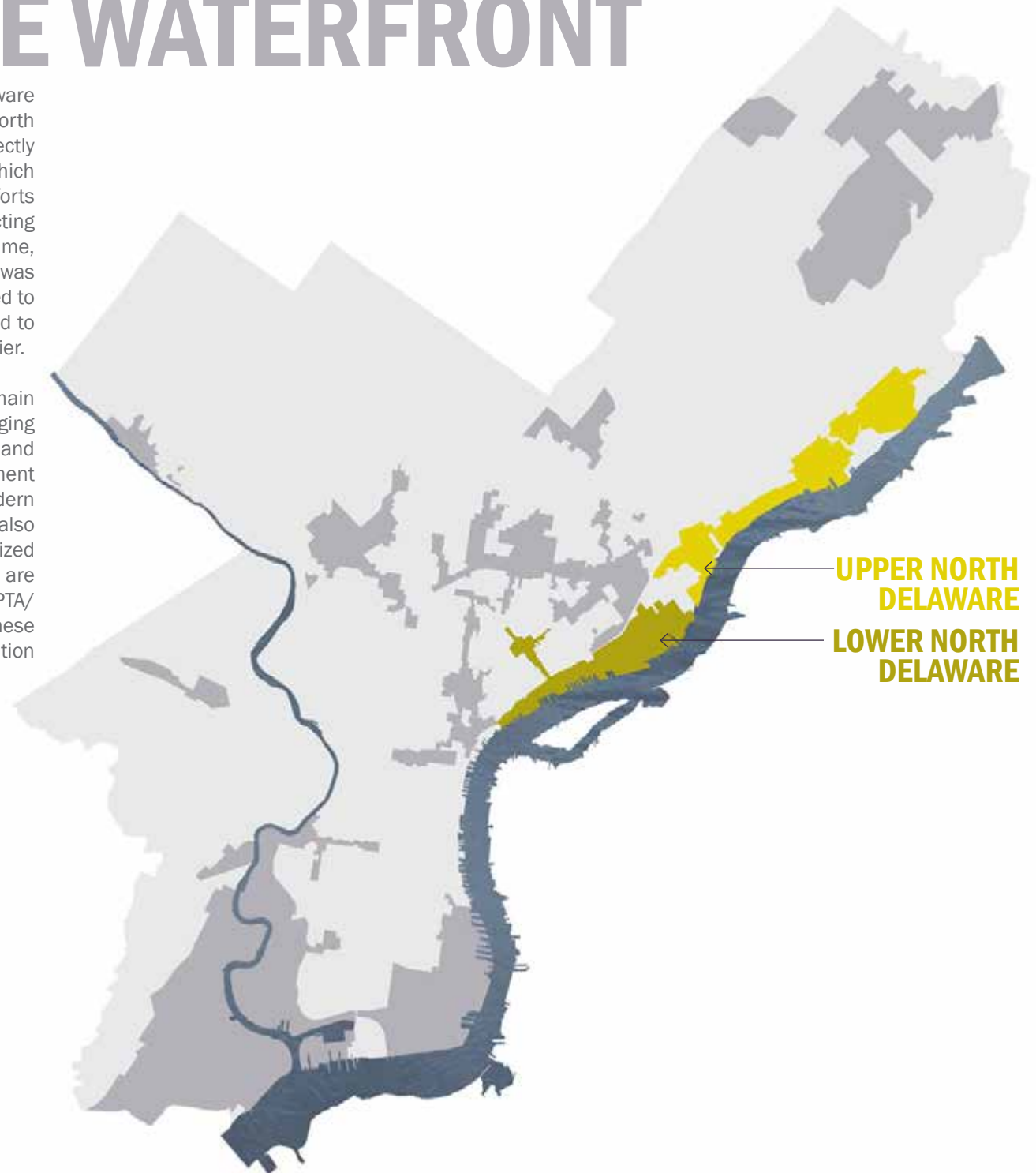
Two large districts comprise a distinct Delaware Waterfront industrial typology – the Lower North and Upper North Delaware districts. Directly south lies the Central Delaware waterfront, which is currently the subject of master planning efforts aimed at increasing green space and re-connecting adjacent neighborhoods to the river. At one time, most of Philadelphia's Delaware River frontage was industrial; today, waterfront industry has receded to parts of these Delaware Waterfront districts and to the South by Southwest districts discussed earlier.

A great diversity of industrial activities remain along the North Delaware waterfront, ranging from petrochemical and container terminals and storage tank fields, to water and sewage treatment plants and power generating stations, to modern manufacturing and processing plants. There is also a significant presence of vacant and underutilized lands, often directly abutting the river, that are highly visible from the stretches of I-95 and SEPTA/AMTRAK that parallel the waterfront here. These vacancies are largely attributed to land speculation and owner inertia.

**TOTAL AREA: 2,361 ACRES**

**TARGET CLUSTER EMPLOYMENT: 5,651**

**AVERAGE PARCEL SIZE: 4.6 ACRES**



**UPPER NORTH  
DELAWARE**

**LOWER NORTH  
DELAWARE**

# UPPER NORTH DELAWARE

## DISTRICT SIZE

Ranks 5th at 1,413 acres in 732 properties

## LAND USE

Dominant land uses are Industrial (53%), Institutional (16%), Vacant (14%), and Commercial (8%)

## VACANCY

Building vacancy is 4%. Land vacancy is 14% (71% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 9th at 3.3 acres average

## BUILDINGS

Average building size is 44,533 square feet; average year built is 1958

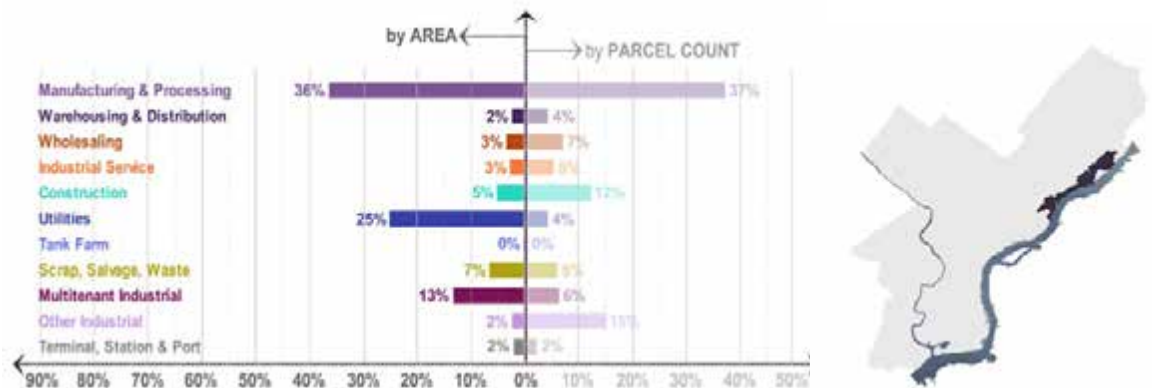
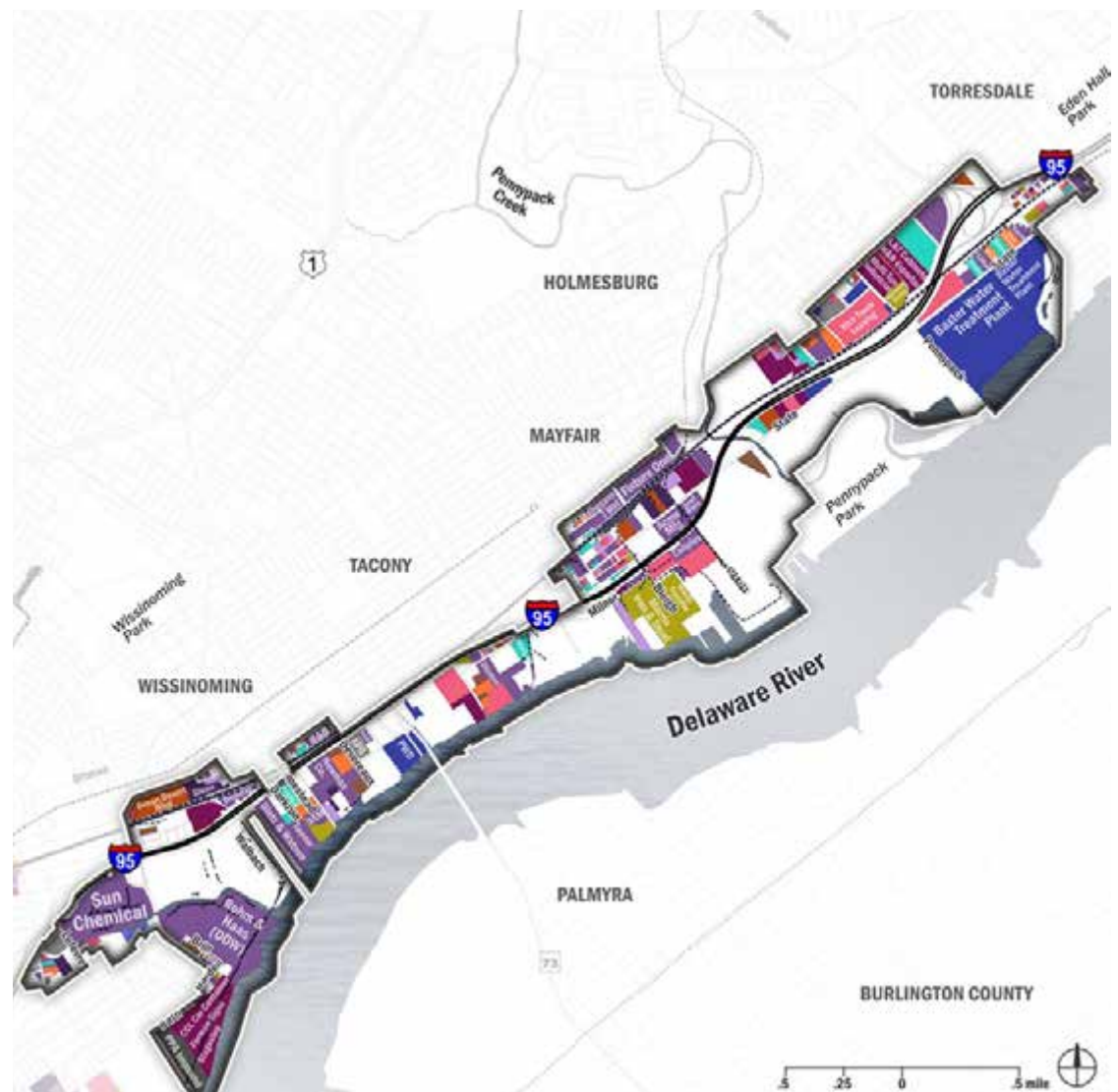


Figure 24: Surveyed Industrial Land Uses and Profile of the Upper North Delaware Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# LOWER NORTH DELAWARE

## DISTRICT SIZE

Ranks 6th at 948 acres in 719 properties

## LAND USE

Dominant land uses are Industrial (58%), Transportation (19%), and Vacant (19%)

## VACANCY

Building vacancy is 4%. Land vacancy is 19% (7% of this is not zoned industrial, and another 7% of this vacancy is reserved for future port operations expansion)

## INDUSTRIAL PARCEL SIZE

Ranks 11th at 5.8 acres average

## BUILDINGS

Average building size is 26,856 square feet; average year built is 1950

## RECENT DEVELOPMENTS

Reconstruction has begun on the Girard Interchange of I-95. A rezoning from industrial to C-3 has been proposed for the former Cramps shipyard parcel.

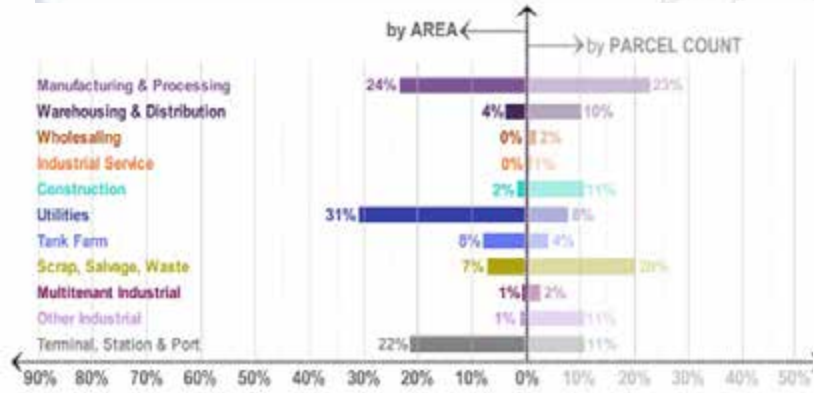
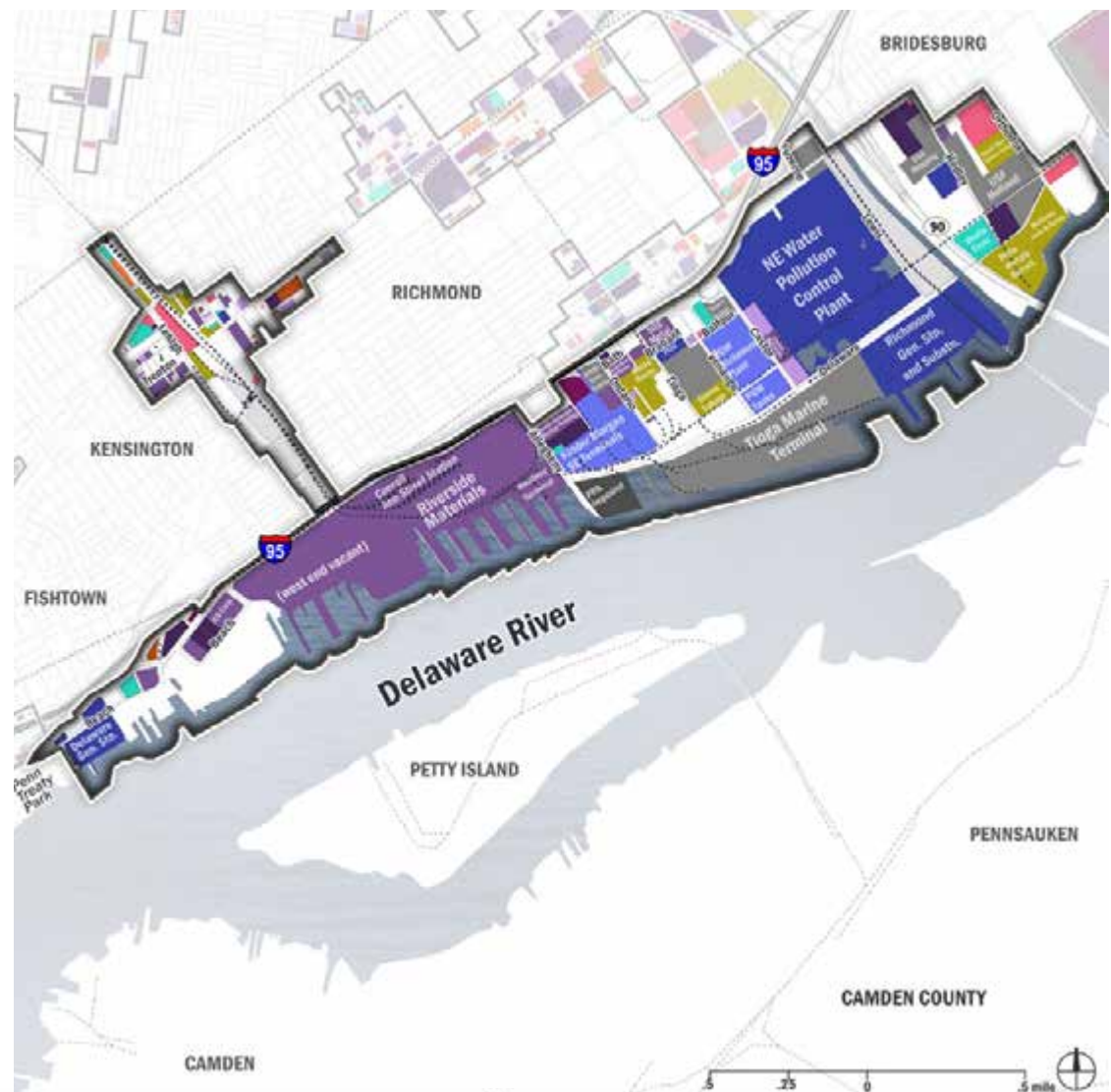


Figure 25: Surveyed Industrial Land Uses and Profile of the Lower North Delaware Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio



# THE NORTHEAST

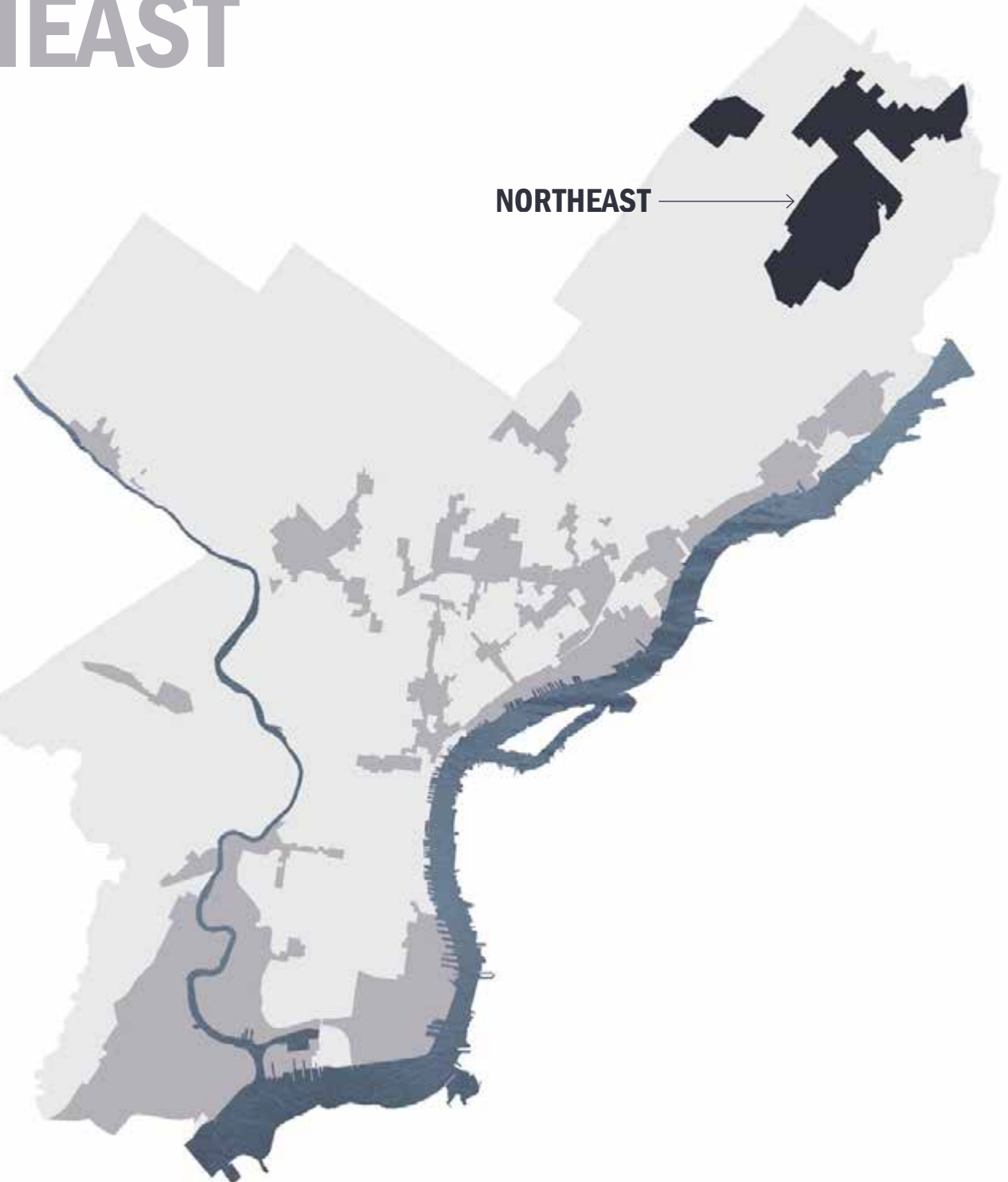
Far from Center City, there is an industrial district that comprises a distinctive industrial typology – the Northeast. This industrial area surrounds the Northeast Philadelphia Airport near the intersection of Roosevelt Boulevard and Woodhaven Road. The district extends north to the city limits, and includes a smaller area along the city boundary to the west surrounding the former Budd Company plant, which is currently the Island Green Country Club. The Northeast was largely undeveloped as recently as the 1950's and afforded opportunities for “greenfield” industrial development in the period following World War II.

The industrial parcels found here today are comparatively modern (within city stock) in configuration with large square and rectangular lots and one story modern facilities that allow efficient truck circulation. Access to I-95 is excellent via Woodhaven and Academy Roads. There is also good access to I-76, via Roosevelt Blvd / Route 1. This district is perhaps the most vibrant and active industrial zone in the city. It also coexists successfully with surrounding residential neighborhoods due to buffering boulevards and an industrial park mode of development, generally found in suburban areas and consisting of large setbacks, low lot-coverage ratios, and attractive building façades.

**TOTAL AREA: 3,390 ACRES**

**TARGET CLUSTER EMPLOYMENT: 15,228**

**AVERAGE PARCEL SIZE: 11 ACRES**



# NORTHEAST

## DISTRICT SIZE

Ranks 1st at 3,390 acres in 420 properties (including the Northeast Phila Airport)

## LAND USE

Dominant land uses are Industrial (41%), Transportation (25%) – due almost entirely to the Airport, and Vacant (15%)

## VACANCY

Building vacancy is 2%. Land vacancy is 15% (18% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 4th at 11 acres average

## BUILDINGS

Average building size is 78,792 square feet; average year built is 1986

## RECENT DEVELOPMENTS

IRS Service Center will be moving from its current location on Route 1 just south of Woodhaven

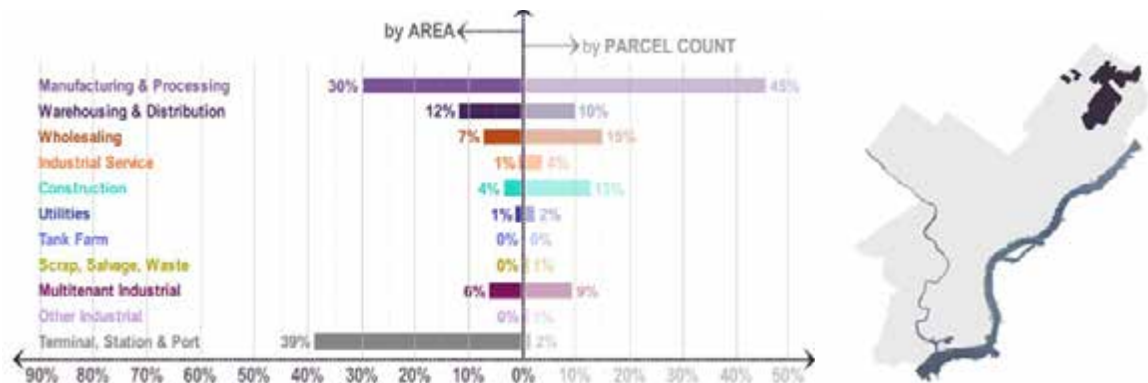


Figure 26: Surveyed Industrial Land Uses and Profile of the Northeast Industrial District. Note: White space indicates non-industrial use, including vacancy.  
Source: Interface Studio

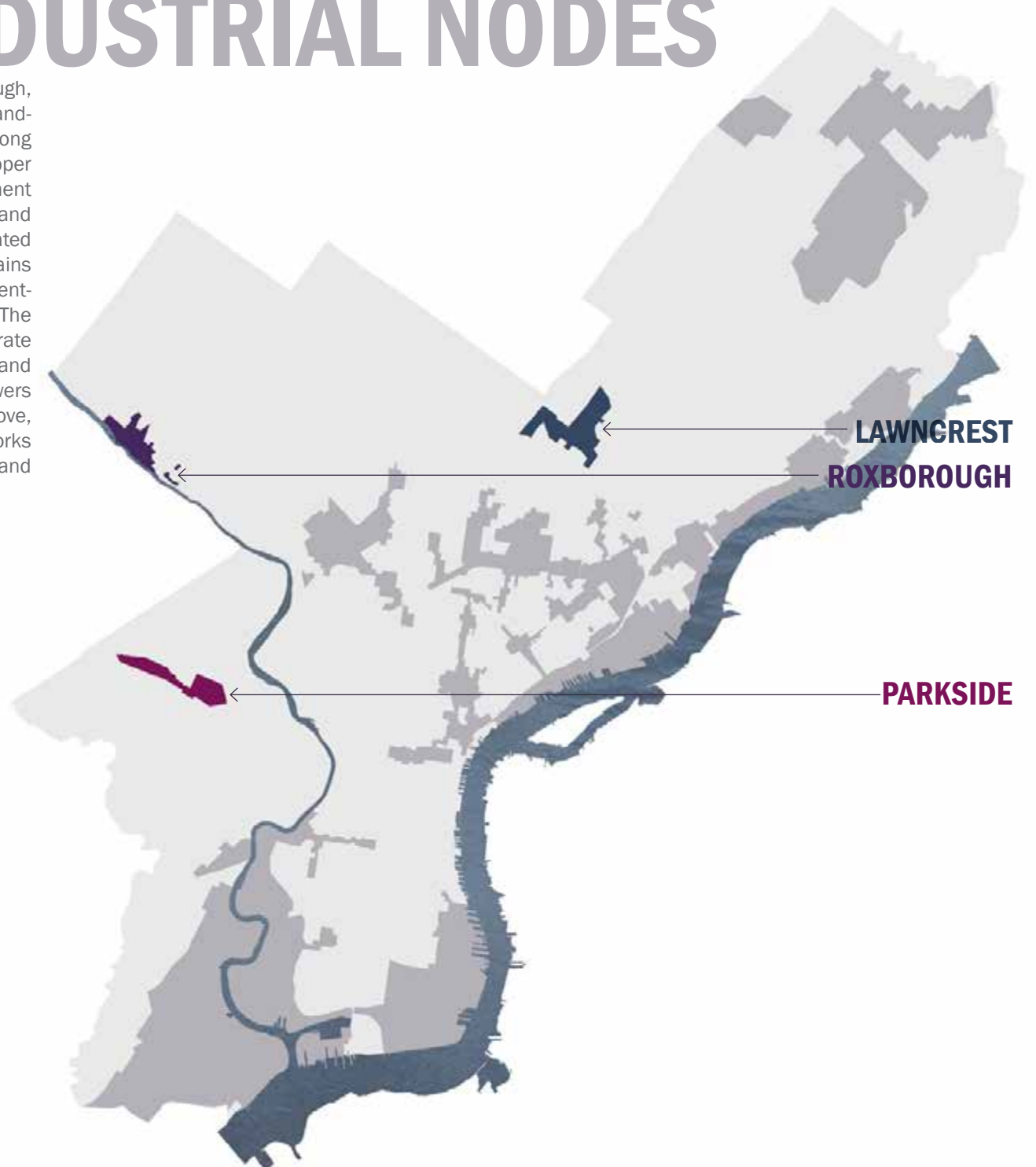
# OTHER INDUSTRIAL NODES

The remaining three industrial districts – Roxborough, Parkside, and Lawncrest – consist of smaller stand-alone neighborhood-oriented districts located along rail and, in the case of Roxborough, the upper Schuylkill River. Lawncrest is a large employment hub anchored by the US Naval Supply Depot, and Cardone Automotive Industries. Parkside, located near Fairmount Park in West Philadelphia, contains a significant cluster of large and development-ready parcels of vacant land and buildings. The Roxborough industrial district consists of disparate industrial uses such as construction supply and auto shops along Umbria Ave, broadcast towers and waste transfer facilities on the hillsides above, and a single remaining factory – the Paper Works Industries/ AbitibiBowater plant – on Venice Island in the Schuylkill River.

**TOTAL AREA: 744 ACRES**

**TARGET CLUSTER EMPLOYMENT: 4,213**

**AVERAGE PARCEL SIZE: 7 ACRES**



# LAWNCREST

## DISTRICT SIZE

Ranks 10th at 380 acres in 181 properties

## LAND USE

Dominant land use is Industrial (76%), followed by Commercial (11%), and Vacant (8%)

## VACANCY

Building vacancy is 9%. Land vacancy is 8%

## INDUSTRIAL PARCEL SIZE

Ranks 2nd at 16.2 acres average

## BUILDINGS

Average building size is 188,868 square feet; average year built is 1953

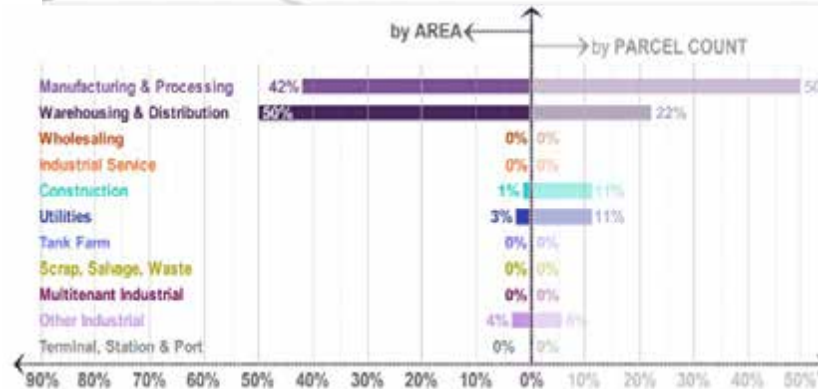
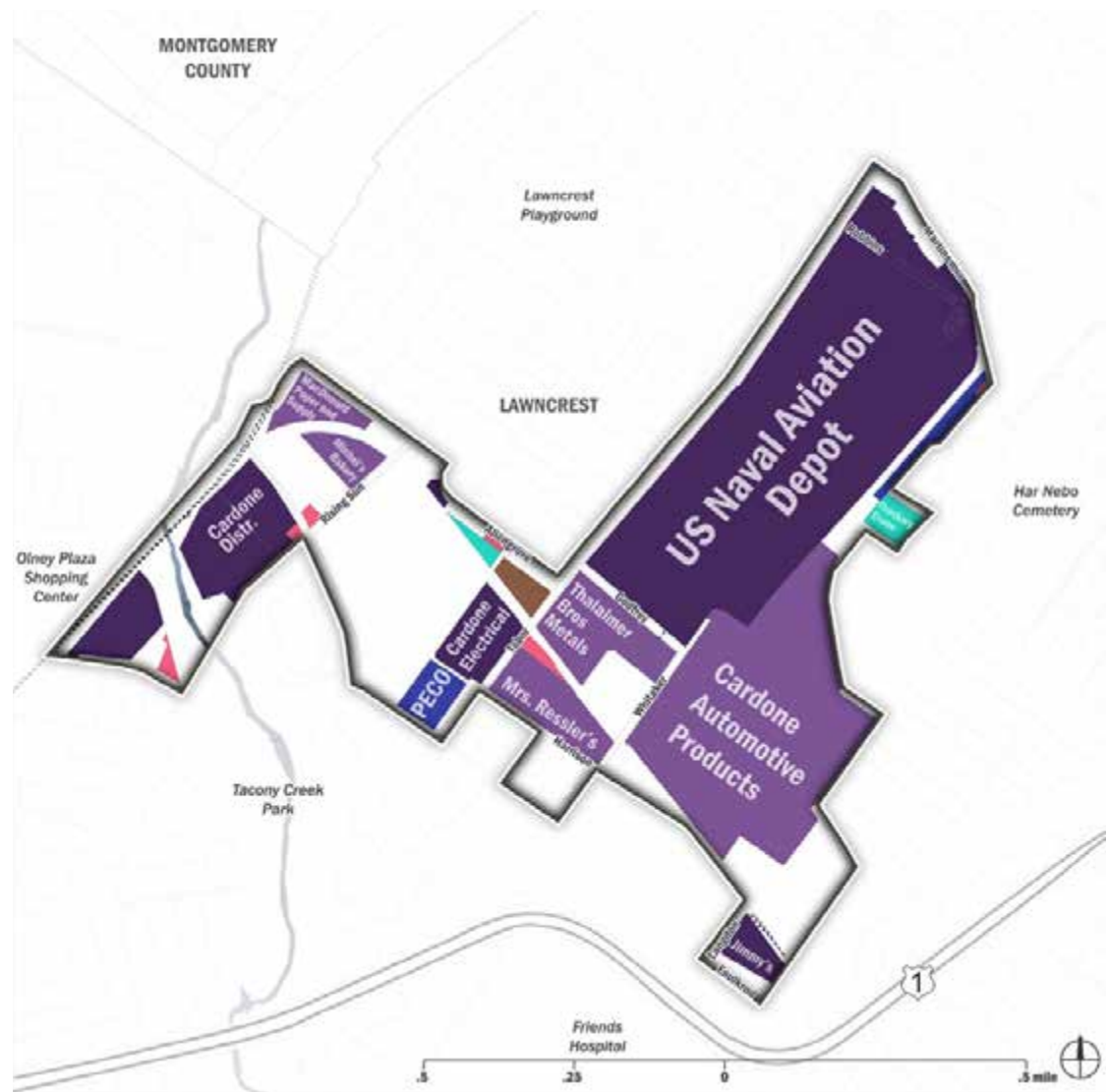


Figure 27: Surveyed Industrial Land Uses and Profile of the Lawncrest Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# PARKSIDE

## DISTRICT SIZE

Ranks 12th at 186 acres in 290 properties

## LAND USE

Dominant land uses are Vacant (41%), Industrial (26%), and Commercial (23%) - due almost entirely to the Park West Town Center shopping center

## VACANCY

Building vacancy is 47%, due to the extremely large and mostly vacant former Acme Markets distribution center. Land vacancy is 41% (only 2% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 11th at 1.3 acres average

## BUILDINGS

Average building size is 24,767 square feet; average year built is 1950

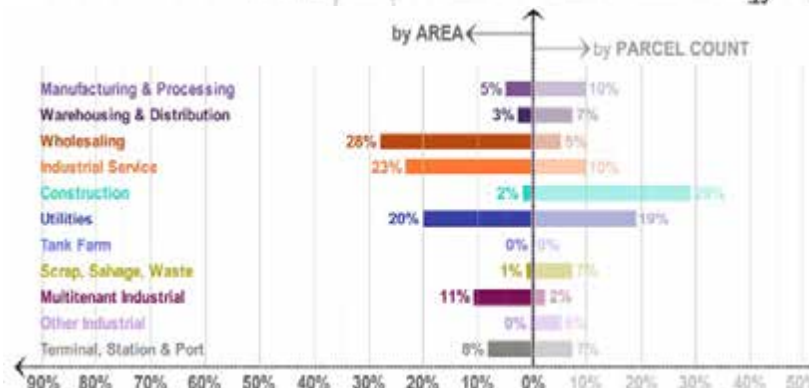
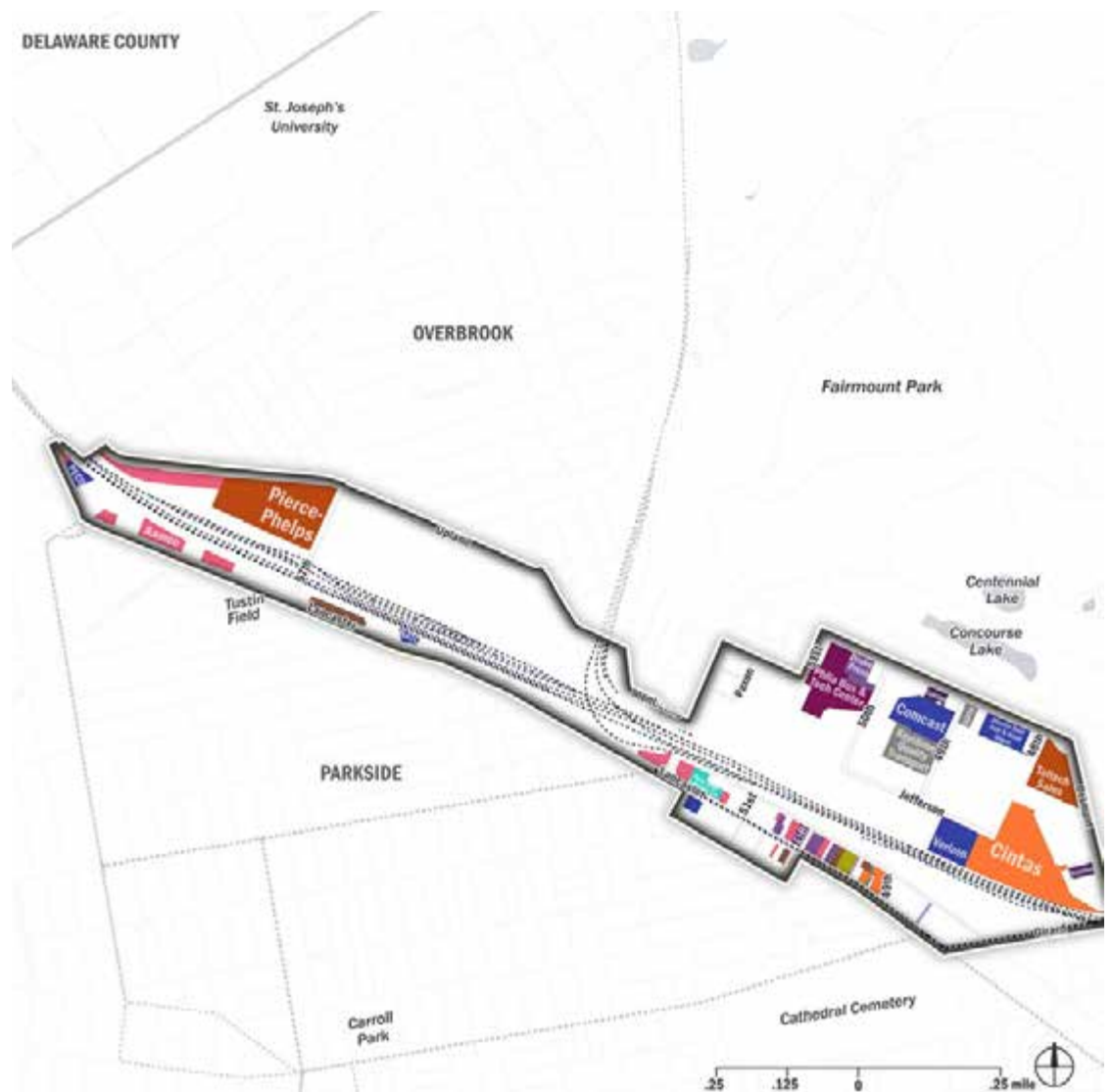


Figure 28: Surveyed Industrial Land Uses and Profile of the Parkside Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

# ROXBOROUGH

## DISTRICT SIZE

Ranks 13th at 177 acres in 83 properties

## LAND USE

Dominant land uses are Industrial (62%), Open Space (20%)

## VACANCY

Building vacancy is 2%. Land vacancy is 4% (6% of this is not zoned industrial)

## INDUSTRIAL PARCEL SIZE

Ranks 7th at 3.6 acres average

## BUILDINGS

Average building size is 53,602 square feet

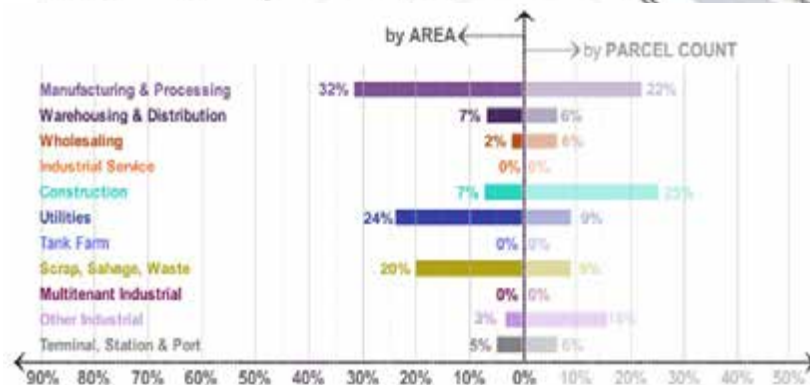
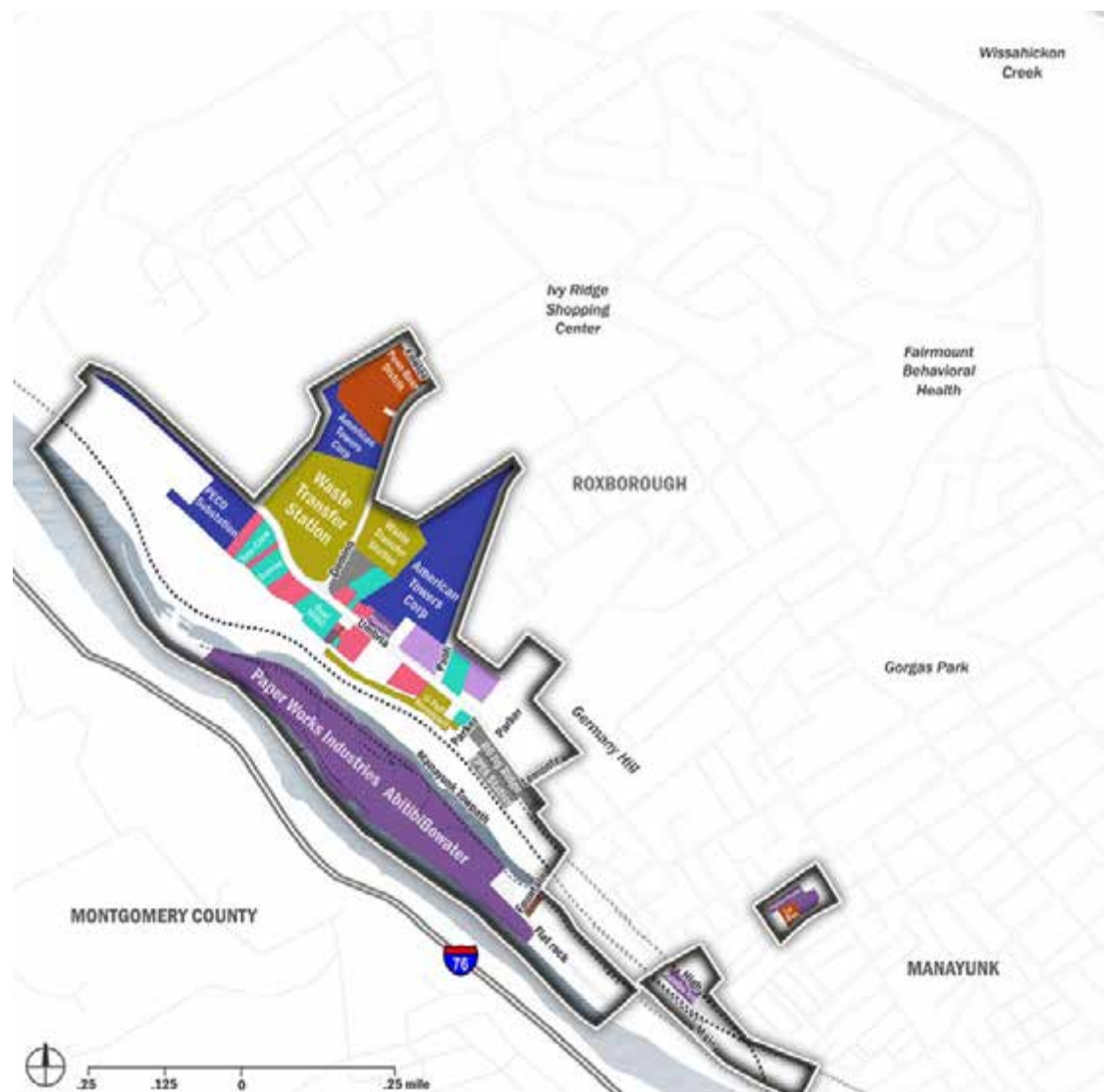


Figure 29: Surveyed Industrial Land Uses and Profile of the Roxborough Industrial District. Note: White space indicates non-industrial use, including vacancy. Source: Interface Studio

## MANY OF PHILADELPHIA'S INDUSTRIAL PARCELS ARE NO LONGER SUITABLE FOR FUTURE INDUSTRIAL USE

As the district descriptions reveal, there is a fundamental supply/demand mismatch between much of Philadelphia's Workshop of the World-era supply of industrial land and the industrial land demanded by modern users. Accordingly, some areas within Philadelphia's fifteen industrial districts are most suitable for transition to other land uses.

Generally speaking, the city has two industrial property types – a vast quantity of small, close-in sites and a limited number of larger sites located around the periphery of the city. The smaller sites typically range between a half-acre to an acre, with poor access to modern infrastructure. Only 115 of the 2,023 parcels surveyed fall into the latter, competitive category, with land areas greater than 20 acres; if large transportation parcels such as the ports and airports are excluded, the city has only 95 such industrial parcels. If this analysis is further refined to include only those large industrial sites with no significant structures requiring demolition, this figure drops to ten properties citywide.

Many areas within the industrial districts are characterized by small sites, dense mixed-use neighborhoods, the presence of structurally-obsolete industrial loft buildings, and lack of efficient highway access. Within these areas, industrial activity is often weak and is not likely to strengthen, given the land use needs of modern users. In some cases, there has been increased market pressure from other uses.

Recognizing that much of the existing land supply is not properly configured for future industrial development, some of the existing vacant and underutilized industrial sites can be transitioned to other uses with minimal impact on the City's industrial sector – such as residential, open space, or mixed-use development. This is due to a variety of factors including fractious ownership patterns, poor site configuration, obsolete facilities, and relative isolation from nearby industrial uses or infrastructure.

New uses for these areas should be determined by the Philadelphia City Planning Commission and community stakeholders through the ongoing comprehensive planning process. This move further rationalizes the City's industrial land use by encouraging the redevelopment of underutilized land while intensifying industrial activity in the locations where there is a marketable mix of space, infrastructure, employment and institutional assets.

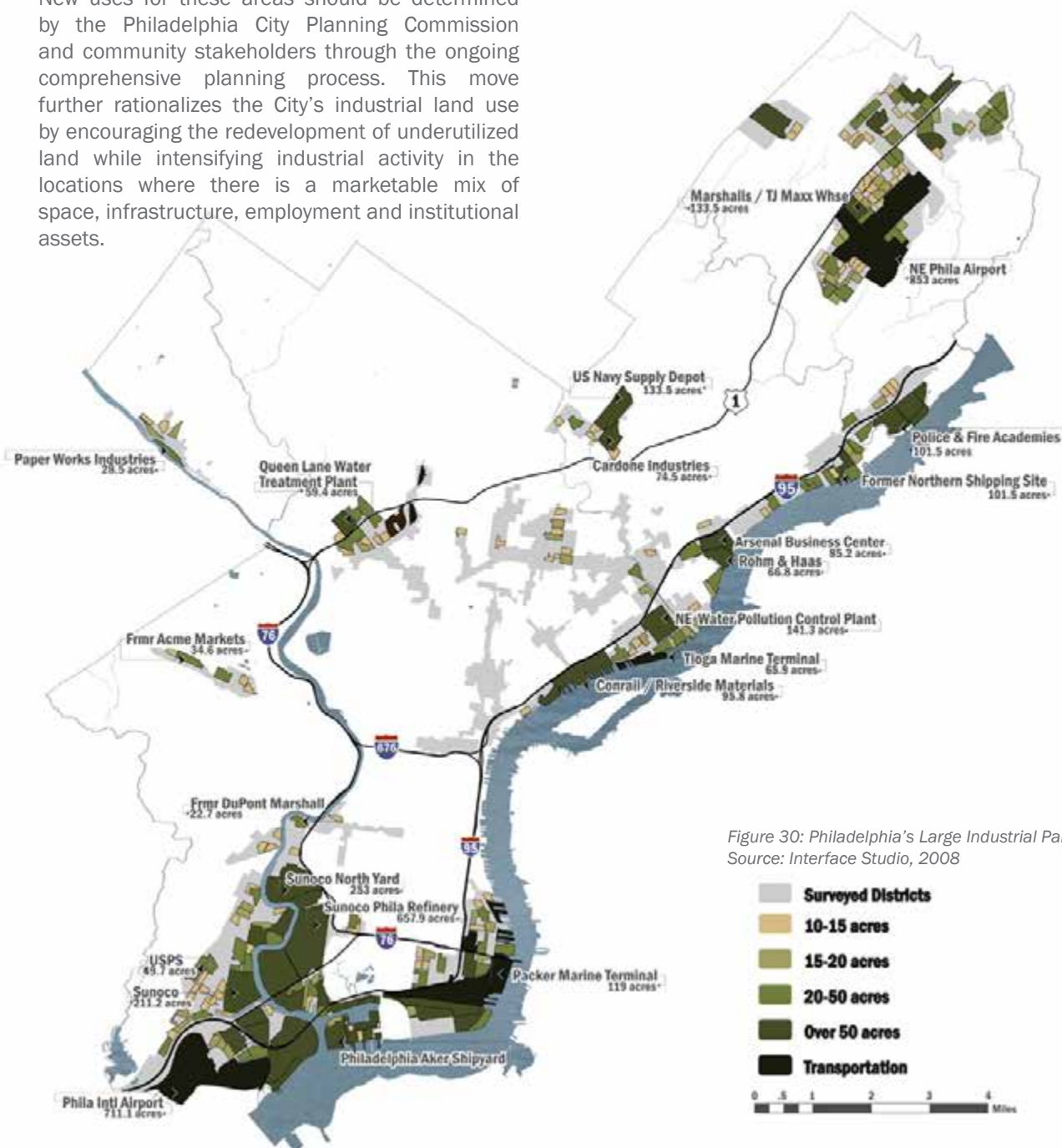


Figure 30: Philadelphia's Large Industrial Parcels  
Source: Interface Studio, 2008

## LAND OPPORTUNITIES FOR FUTURE INDUSTRIAL EXPANSION

Philadelphia's potential inventory of industrial land for future development is often constrained by current development, under-development, zoning, or other factors that can hinder the cost-effective utilization of the site for new development. The survey identified 2,445 acres of land potentially suitable for future development within the portions of Philadelphia's fifteen industrial districts that were proposed for continued industrial use in the future. These areas are outlined further in Chapter Four and were determined based on historical patterns of use, available infrastructure, current utilization, environmental constraints and parcel sizes (note that in several instances, areas proposed for future industrial use are located within industrial districts but not currently zoned industrial). Land was categorized into four tiers based on availability for development.

### LEVEL I

The first tier consisted of vacant land and building parcels located in areas proposed for future industrial use. Land that is either completely or partially (greater than 50%) vacant was included, while vacant land under development or reserved for future development was excluded. The total area of level one land supply was 1,518 acres. While these parcels are the most immediately suitable for new industrial development, there are many other factors including contamination, soil conditions, configuration and ownership that could present barriers.

### LEVEL II

Next, parcels in transition or proposed for rezoning were identified. While not currently available, these properties could become available for new industrial development in the future. Existing facilities on site could represent a challenge for re-use. In this tier, land or buildings that were listed for sale or re-locating were considered. Although such parcels comprise only 196 acres, they include several large, well-located properties such as the IRS property in the Northeast, the former Tastykake facilities in Hunting Park West, and the former Philadelphia Regional Produce market in South Delaware.

### LEVEL III

The third tier of land considered is described as "underutilized." These parcels were in current use at the time of the survey and therefore required careful definition and rationalization to justify any proposed reuse for industrial development. The focus was on properties that were larger than 5 acres, with less than 10% building coverage, and that were currently being utilized for one of the following purposes: surface parking; scrap or salvage yards; and waste transfer or recycling. In addition, smaller sites that otherwise fit the above description and that could be assembled with contiguous properties into a larger site size were also considered, as were large parcels whose level of utilization was difficult to determine, such as the Sunoco North Yard property on the Lower Schuylkill. Underutilized properties added an additional 731 acres to the land supply inventory.

Taken together, these three levels of land supply comprise a total 2,445 acres of land located in areas deemed most appropriate for future industrial retention or growth. This figure includes completely vacant land and buildings (1,394 acres), partially vacant land and buildings (124 acres), land available on the marketplace (196 acres), and underutilized land (731 acres). However, these parcels comprise more than the sum of their parts: if contiguous parcels were acquired and assembled, the resulting larger sites might not just accommodate larger facilities, but also different classes of facility – large-scale distribution versus flex development, for example. Combined with clearly identified districts and zoning, sufficient infrastructure, and appropriate incentives, these larger parcels are much more likely to be able to attract private investment for industrial development than in their current state.



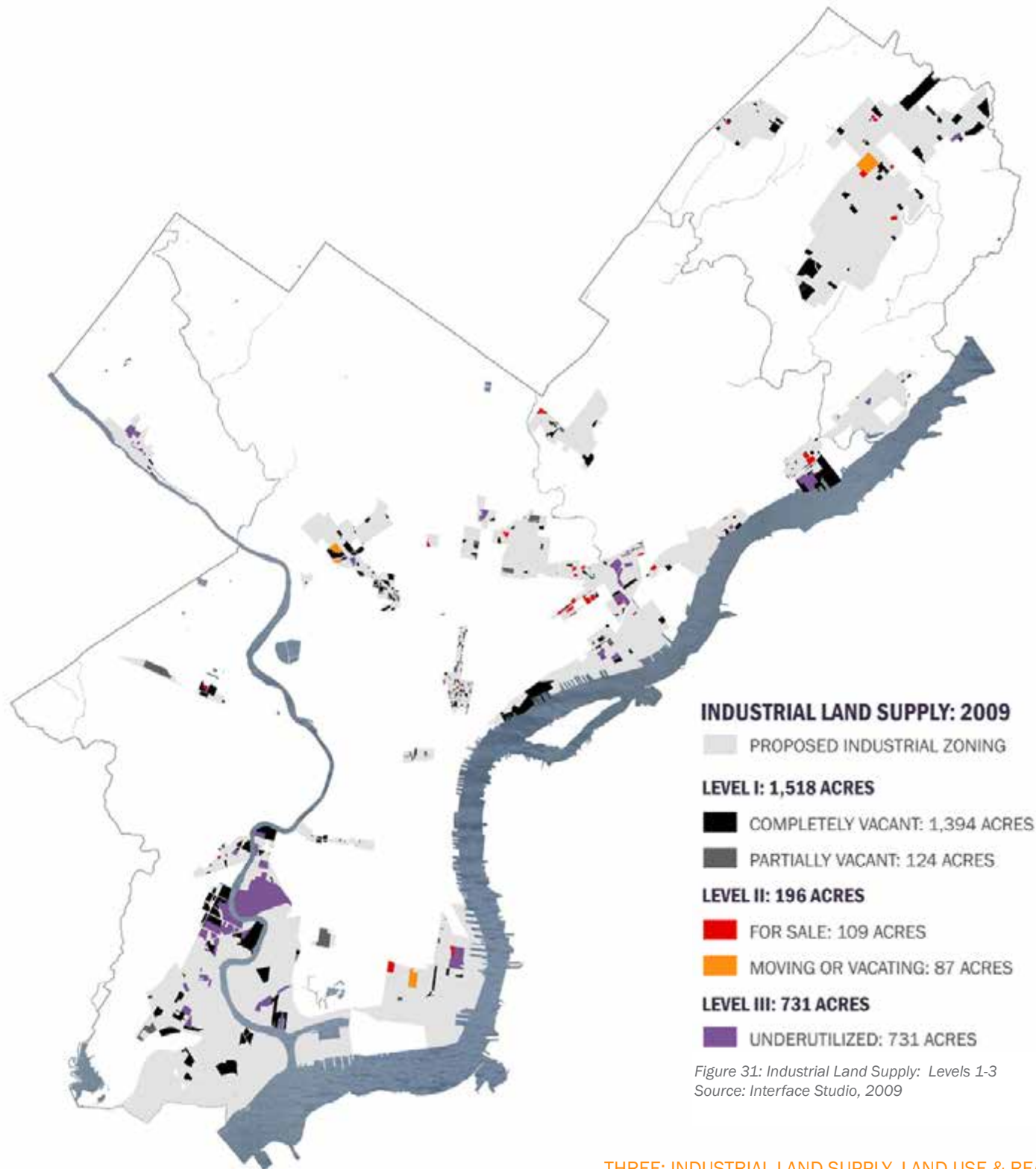


Figure 31: Industrial Land Supply: Levels 1-3  
 Source: Interface Studio, 2009

#### LEVEL IV

A final level of properties identified in the industrial land supply inventory has the potential to induce additional demand by adding large new develop-able parcels to what has historically been a built-out industrial real estate market. This tier includes large non-industrial properties that are surrounded by industrial property such as the Island Green Country Club in the Northeast, the Essington Auto Mall in the Southwest, plus several currently industrial parcels such as the SEPTA Midvale Yard and the Queen Lane Filter Station that have large portions of their sites that are significantly underutilized. While likely more difficult to acquire, assemble and/or remediate, these properties were considered sufficiently large and well-located to have the potential to actually induce additional industrial land market demand in Philadelphia. While considered separately from the other three tiers of inventory, these properties should be carefully examined for a change of use, particularly if market conditions would facilitate such a transition.

#### SUPPLY & DEMAND

As outlined in Chapter Two, this study projects that Philadelphia would require approximately 2,400 acres of land for future industrial development to accommodate 22,000 potential new jobs in Philadelphia over the next twenty years. Over time, many existing industrial sites will turn over naturally, as facilities in good locations age and the sites become available for redevelopment, with some of the projected demand being absorbed by these properties. The first three tiers of land inventory represent the best opportunities to satisfy the additional demand, and several strategies are outlined in the next chapter to best protect, incentivize and synergize positive utilization of these areas.

However, it is worth noting that the market demand projections may not necessarily reflect induced demand if new land inventory of significant scale were added to the City's supply of competitive industrial sites. As the demand analysis is tied to employment projections based on historical trends, if industrial employment has been historically constrained by a lack of land for expansion or new development, such projections may under-represent the true potential of the City. Indeed, as has been PIDC's experience over the half century of existence, that when abundant, quality industrial land has been available that the level of investment and development has been quite high. As such, long-term opportunities for Philadelphia to further induce demand for new industrial development in areas that are already intensive industrial nodes are critical to the City's future as a vital, vigorous center of industry.

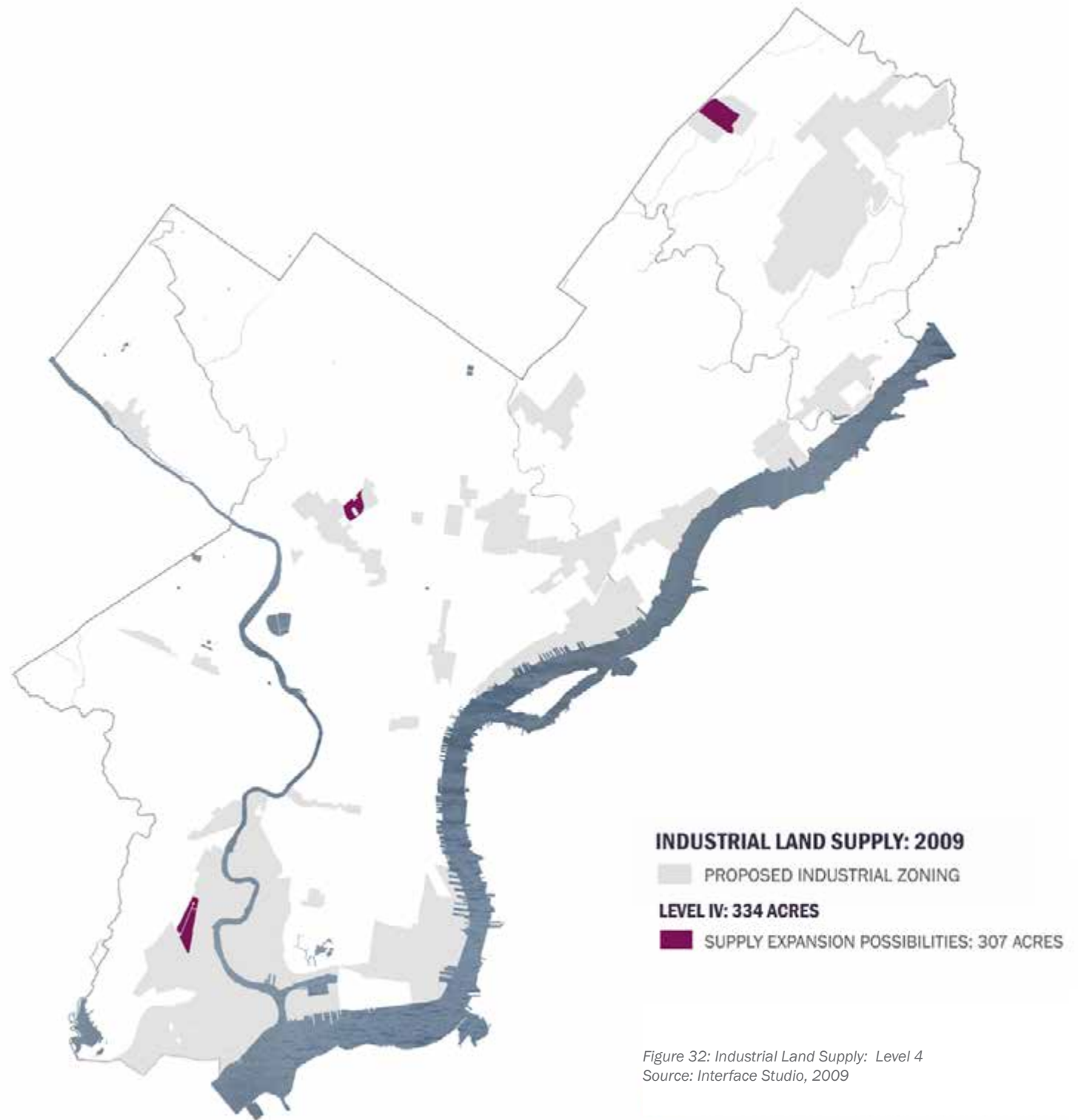


Figure 32: Industrial Land Supply: Level 4  
 Source: Interface Studio, 2009

## ZONING UNCERTAINTY AND OTHER BARRIERS TO DEVELOPMENT

It is important to note that, while land that is suitable for future industrial development exists within Philadelphia, the vast majority of that land is far from shovel-ready. Proactive planning and investments in land assembly, site improvements, and marketing are necessary to upgrade many properties. Many areas will need significant access improvements and extensive environmental remediation. Other areas are tied up because of zoning uncertainty.

Industrial development is driven by the availability of relatively low-cost land. Land value is dependent on how that land can be used, which is prescribed by zoning. Regardless of how desirable a particular location may be, industrial rents and land values, as measured on a per square foot basis, will always be significantly lower than other types of real estate. Accordingly, industrial properties must be developed at a lower cost, and on cheaper land, than other types of uses. In order for new industrial development to occur, the market must know that zoning designations are definitive. For example, if it seems likely that a land owner will be able to rezone his or her property from an industrial to a commercial zoning category, the property's viability for future industrial development is compromised because the land owner will hold out for the higher values afforded by commercial zoning. Uncertainty can lead to speculation and can prevent job-producing industrial development from occurring.

Many currently industrial areas of the City are facing significant pressure on continued industrial use from rising property values. Increased property values result from nearby infrastructure and amenity improvements, changing community expectations, and speculative interest in changes of use on the part of real estate developers. The accompanying graphic illustrates these pressures. Prior to the slump in the real estate market, for instance, the pressure from new mixed-use and residential development resulted in markedly increased property values from the residential areas of Northern Liberties and Fishtown into industrial parts of Kensington and American Street.

More broadly, industrial areas have faced significant pressure to re-zone property to accommodate commercial, institutional, or residential development. To support surrounding residential uses this has already occurred along South Delaware Avenue with big box retailers such as IKEA and Home Depot, in Parkside and Lawncrest for new supermarkets, and in the Northeast and Aramingo for large-scale shopping centers. Some industrial districts are home to hospitals and schools whose desires for expansion can place additional pressure on the long-term viability of industrial use. While rezoning of obsolete industrial facilities represents a beneficial repurposing of land and buildings, if left unchecked and with no strategic direction, this market-driven process can compromise the viability of the remaining industrial districts.

In order for new industrial development to occur, the market must know that zoning designations are definitive. For example, a waterfront site may have been acquired at an industrial price of \$100,000/acre, but has the potential to be traded at \$300,000-500,000/acre for housing, \$500,000-600,000/acre for retail, or \$1-3 million/acre for a casino should a zoning change occur. The property's viability for future industrial development is compromised because the land owner will hold out for the higher values afforded by commercial zoning.



**INDUSTRIAL RE-ZONED TO COMMERCIAL**  
**INDUSTRIAL RE-ZONED TO RESIDENTIAL OR ENTERTAINMENT**

NOTE: RE-ZONED PORTION OF NAVY YARD PROPERTY IS UNDERLAIN BY INADEQUATE SOILS FOR HIGH-LOAD INDUSTRIAL DEVELOPMENT

## ZONING TRENDS

Whether the issue is environmental, zoning uncertainty, or the need for infrastructure upgrades, public intervention will be required to make otherwise suitable sites shovel-ready in order to stimulate investment. The goal of these public interventions is to position industrial real estate so that it has the attributes necessary to attract private funding in modern, investment-grade flexible industrial facilities that will be responsive to market demands and ultimately retain their utility and value over time. This represents a shift from Philadelphia's long tradition of purpose-built manufacturing that becomes obsolete due to its limited utility for alternate industrial uses.

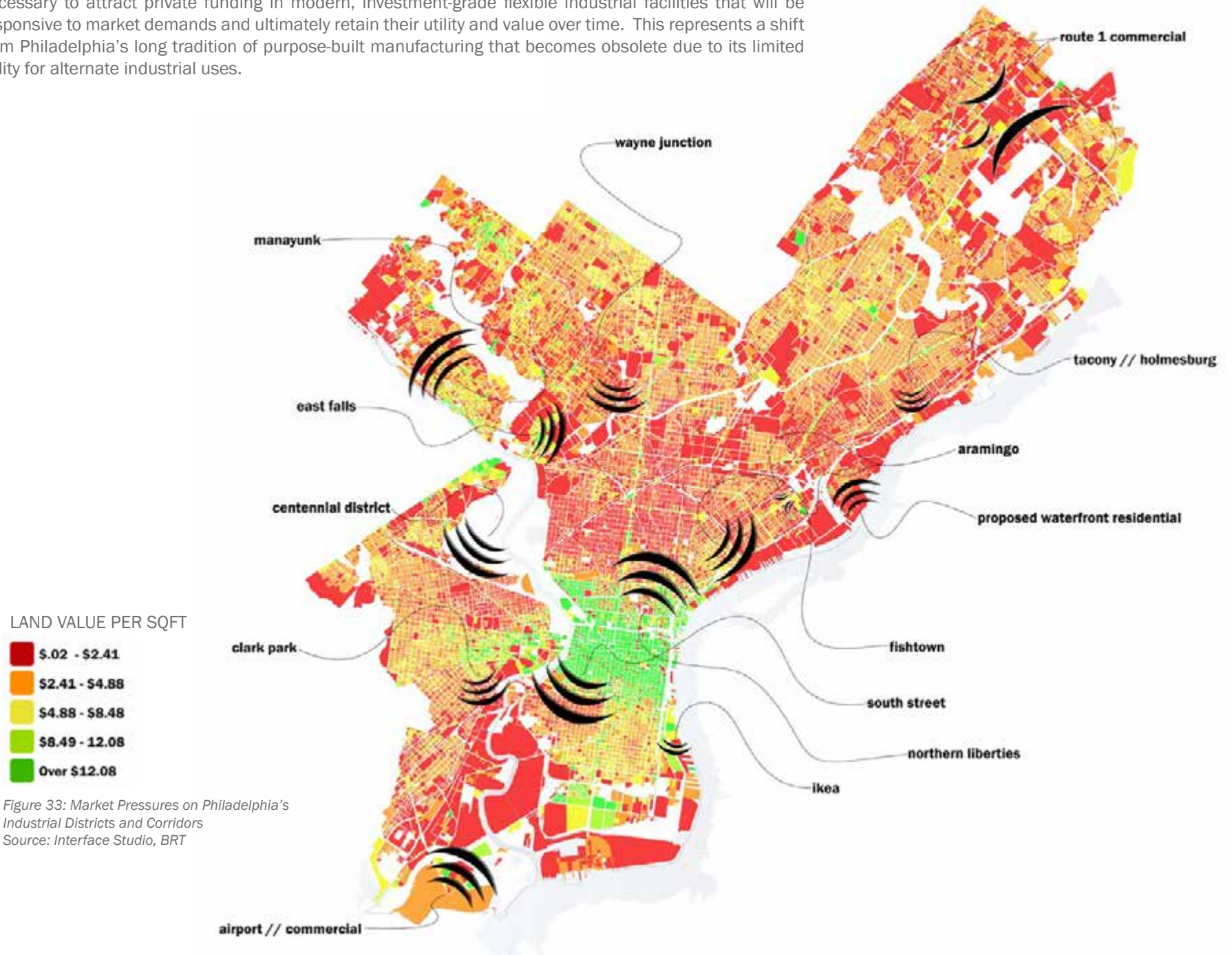


Figure 33: Market Pressures on Philadelphia's Industrial Districts and Corridors  
 Source: Interface Studio, BRT



**AERIAL VIEW OF PORT RICHMOND WATERFRONT**

SOURCE: PICTOMETRY INTERNATIONAL 2009, THE CITY OF PHILADELPHIA

# RECOMMENDATIONS

The following section outlines the core market and land use strategies that have emerged from this study as the best options to assure a viable supply of jobs-producing land in the City of Philadelphia well into the future and strengthen the clusters that comprise the City's most competitive industrial opportunities. While issues related to workforce development and Philadelphia's business and real estate tax environment have a profound effect on companies' decisions to locate or expand in the City, these issues are beyond the scope of the present study and should be assessed for additional study opportunities that could contribute to the growth of the industrial sector in Philadelphia.

The following recommendations can be grouped into three areas. First, Zoning for Modern Industry outlines new strategies to modernize Philadelphia's industrial zoning to better suit the needs of today's industrial businesses and developers of modern industrial facilities. Next, Positioning Industrial Land for Development identifies several clear land use policy directions for nodes of industrial property in the city. While some industrial property is no longer suitable and should be transitioned to other uses, many industrial nodes are vibrant, diverse and productive and should be afforded some measure of land use certainty to ensure their continued success. Still other areas, while not currently intensive industrial nodes, offer great potential to Philadelphia's target cluster industries and should be re-positioned to effectively take advantage of these opportunities. Finally, the Supporting Recommendations area outlines strategies to green Philadelphia's industrial sector, up-cycle obsolete industrial buildings, market the City's industrial portfolio, and identifies opportunities areas for further study.

## ZONING FOR MODERN INDUSTRY

Pursuant to a Philadelphia Home Rule Charter Amendment that was passed in May 2007, the Zoning Code Commission was established to "conduct a comprehensive analysis and make recommendations regarding reforms to the Philadelphia Zoning Code." The ongoing work of the Zoning Code Commission provides Philadelphia with a unique opportunity to formally rationalize its supply of industrial land while updating its classifications to represent a twenty-first century patterns of urbanism.

The city's current zoning code reflects a 1962 city economy and, accordingly, addresses obsolete uses such as leather tanning, slaughterhouses, wagon repair, and typewriter manufacturing. The code includes nine different zoning classifications, though 91% of Philadelphia's industrial land is zoned one of three classifications: L2 (14%), G2 (45%), and LR (32%). Currently, the city has five industrial classifications that differ from one another almost exclusively in setbacks and lot coverage. The permitted land uses within industrial zones do not account for a modern range of low-impact, high-performance, mixed-use industrial development.

To assist the Zoning Code Commission in their work to re-write Philadelphia's zoning code, this study proposes a new industrial zoning classification system for discussion and public review. The proposed industrial classification system is based on the survey of Philadelphia's fifteen industrial districts, an accompanying analysis of the local industrial sector's needs and challenges, and an assessment of best practices from other cities and regions.

# RECOMMENDED ZONING TYPOLOGIES

## UTILITIES AND TRANSPORTATION

A significant percentage of the City's industrial land is occupied by critical, typically publicly-owned infrastructural assets. 3,500 acres – nearly 4.5% of the city – are occupied by ports, airports, rail yards, power generation and transfer facilities or water filtration and sewage treatment facilities. Since the form of these facilities generally follows their function, as do impacts such as noise, traffic, odor, and activity, the character of these parcels vary widely. Treating them separately from a zoning perspective would “free up” traditional zoning categories to more directly enhance the marketability, functionality, attractiveness, and compatibility of productive industrial sites. This could enhance job retention and growth citywide by more functionally linking the city's economic development and land use policies. In addition, as most of these utility and transportation assets anchor many of the city's industrial districts, a separate zoning category could help to soften the interface of industrial areas with non-industrial uses.

### REPRESENTATIVE SITES INCLUDE:

- Philadelphia International and Northeast Philadelphia Airports
- Tioga Ave and Packer Ave Marine Terminals
- Southeast and Southwest Pollution Control Plants
- Torresdale Pumping Station
- Queen Lane Reservoir and Water Filtration Plant
- Tristate / CSX South Philadelphia Intermodal Yard

### USES:

Power generation, water, waste treatment; rail yards, ports, airports

### CHARACTER:

VARIABLES.

Form follows function

### IMPACTS:

Fixed impacts – includes odor, traffic, noise, high activity

## HEAVY INDUSTRIAL

The character and impacts of heavy industrial areas are not compatible with residential land uses and, as such, this zone incorporates areas well-buffered or isolated from neighborhoods and most commercial uses. Low building coverages – often lacking enclosed activity altogether – slack space, storage tanks, pipelines, garages and yards would be typical forms found in this zone. An attractive operating environment is less important to users in this classification and design standards should be limited. The zone should be permissive of high impacts such as noise, vibration, odor, traffic and activity in order to provide for functional and secure space in the city required by petrochemical tank farms, refineries, gasification plants, asphalt and concrete plants. Additional areas for community-serving heavy industrial activities – including scrap yards, salvage yards, recycling, waste transfer and heavy equipment maintenance or repair – may be designated within existing industrial districts via a community planning process where necessary.

### REPRESENTATIVE SITES INCLUDE:

- Sunoco Philadelphia Refinery complex in Grays Ferry
- PGW's Passyunk re-gasification plant in Grays Ferry
- Kinder Morgan and PGW tank farms in Lower North Delaware
- Riverside Materials asphalt plant in Lower North Delaware

### USES:

Least restrictive - refineries, petroleum tanks & terminals

### CHARACTER:

LOW FAR.

Tanks, pipelines, secure areas

### IMPACTS:

Most permissive - high noise, odor, vibration, traffic

## MEDIUM INDUSTRIAL

The medium industrial classification incorporates the bulk of the city's non-infrastructure industrial lands. The impact of the activities located here are less noxious than those found in heavy industrial areas, and many general industrial zones already abut residential neighborhoods. Higher building coverages, large lots and building footprints and truck circulation areas are found in this zone, which generally comprises the most appropriate territory for retention and growth of modern industrial facilities. Urban design standards, infrastructure improvements, and other upgrades should be made to achieve the quality business environment required to make these sites more competitive and marketable. Manufacturing, processing, wholesale and distribution uses with moderate noise, vibration, odor and traffic impacts would be typical in this zone.

### REPRESENTATIVE SITES INCLUDE:

- Hunting Park East manufacturing and distribution core
- Eastwick A industrial park in Southwest
- Byberry industrial park in Northeast
- Food Distribution Center in South Delaware

### USES:

Manufacturing, distribution, processing, industrial park

### CHARACTER:

MID FAR.

Mid to large footprint, well-buffered

### IMPACTS:

Permissive – noise, vibration, odor, hours, traffic



## LIGHT INDUSTRIAL

The light industrial classification is intended to accommodate modern business and technology parks, advanced manufacturing, and research and development facilities on high-value urban land in an attractive, low-impact environment. Design guidelines, performance standards, and a percentage of by-right office uses would provide for an environment competitive with suburban business and technology parks, with the added advantage of proximity to educational and health assets located in the city. Low-impact light industrial users – fabricators, wholesalers, and small distributors would also be typical in this zone, as would higher building coverages, urban street patterns and small or subdivided lots.

### REPRESENTATIVE SITES INCLUDE:

- Navy Yard research and development park east of Broad Street;
- Former Budd Complex and adjacent properties in Hunting Park West;

### USES:

Light manufacturing, assembly, artisanal fabrication, office, R&D, small wholesale, local distribution

### CHARACTER:

MID FAR.  
Mid to large footprint, well-buffered

### IMPACTS:

Permissive – noise, vibration, odor, hours, traffic

## INDUSTRIAL COMMERCIAL MIXED USE

This zone accommodates mixed-use corridors across the city consisting of commercially-driven, locally-serving light industrial and heavy commercial uses including food wholesaling, equipment fabrication and repair, and construction supply. Higher truck and forklift traffic, outdoor material yards and daylight hour activity distinguish these areas from more retail-oriented commercial corridors. As such, impacts are generally localized and the character is mixed. This zone should specifically promote the reuse of older industrial buildings and carefully manage any decline of industrial uses.

### REPRESENTATIVE SITES INCLUDE:

- Umbria Avenue construction supply corridor in Roxborough
- Washington Avenue construction supply corridor in Grays Ferry
- Center City-serving restaurant equipment fabrication and food wholesaling in Callowhill
- Close-in food distribution uses within the American Street corridor

### USES:

Commercially-driven mix of locally-serving quasi-industrial (eg, food wholesale, local fabrication & repair, construction supply), and commercial

### CHARACTER:

VARIETY IN SCALE & USE.  
Typically smaller footprint, located along commercial corridors

### IMPACTS:

Localized noise, traffic, activity

## INDUSTRIAL RESIDENTIAL MIXED USE

This zone is intended to address the unique areas of Philadelphia that still bear the marks of the industrial revolution – multi-story factory buildings, workshops, and garages standing cheek-to-jowl with dense urban row housing. While many of the factories that utilized these older buildings have gone, the communities' long association with their industrial legacy is often commensurate with a desire for continued productive uses and employment within the old neighborhoods. The industrial residential mixed use zone would provide a framework for true live-work uses, artisanal and small manufacturing, fabrication, assembly, and workshop uses compatible with traditional neighborhood fabric. The scale of industrial use here would invariably be small, with high - often multistory - building coverages, and minimal impacts. New mixed use building types would be encouraged to set aside space for productive activities.

### REPRESENTATIVE SITES INCLUDE:

- Lower American Street neighborhood
- Aramingo district close to the Frankford Creek
- Allegheny West neighborhood

### USES:

Artisanal, creative, workshop, small mfg. & fabrication compatible w/ traditional neighborhoods - residential conversion limited

### CHARACTER:

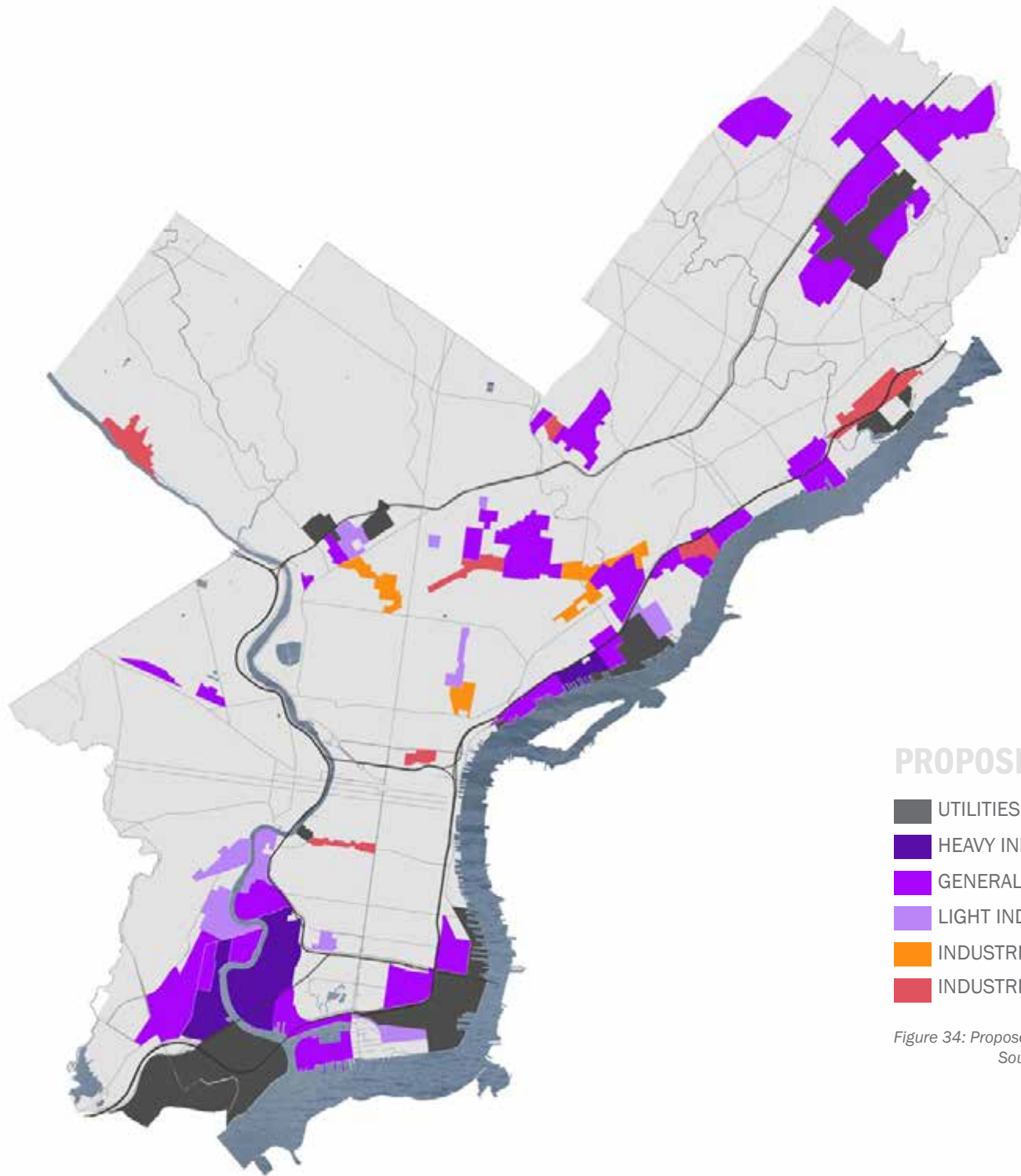
SMALL SCALE.  
Flexible - often adaptive use of existing building stock, garage, workshop

### IMPACTS:

Minimal

The nine industrial zoning classifications in Philadelphia's current code should be collapsed into four classifications. The four classifications include a utilities and transportation infrastructure category that would separate public infrastructure from private industrial activity. The remaining three industrial zones classifications include heavy industrial, medium industrial, and light industrial. The intention is to segregate industrial uses with significant impacts on the surrounding environment (heavy industrial) as well as to create a tiered set of use and design regulations to improve the look and feel of industrial uses depending upon their proximity to surrounding communities.

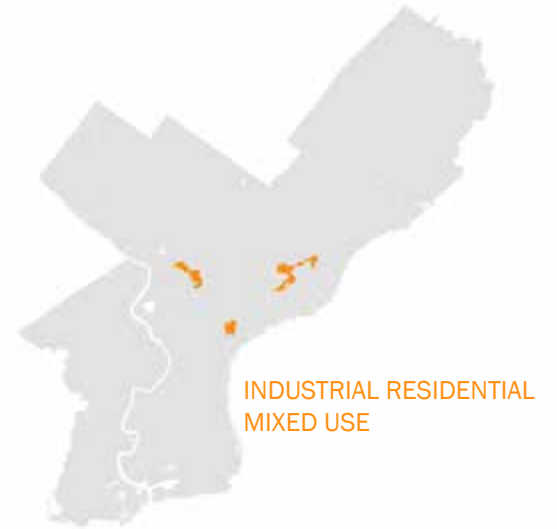
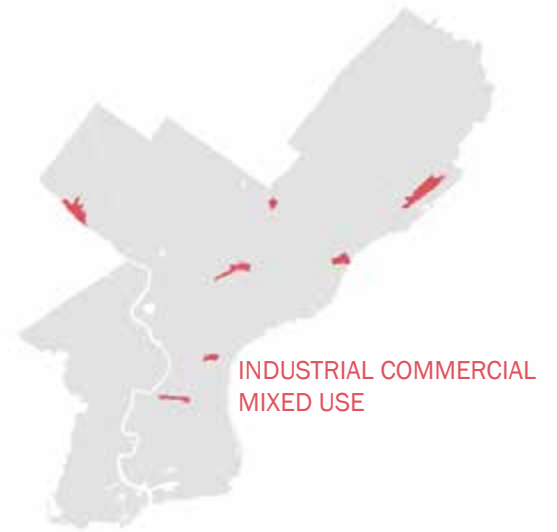
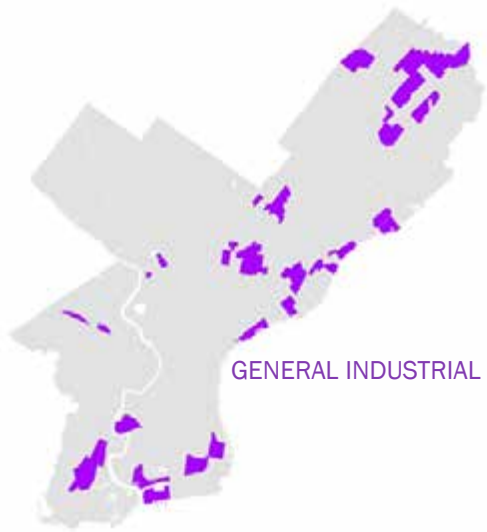
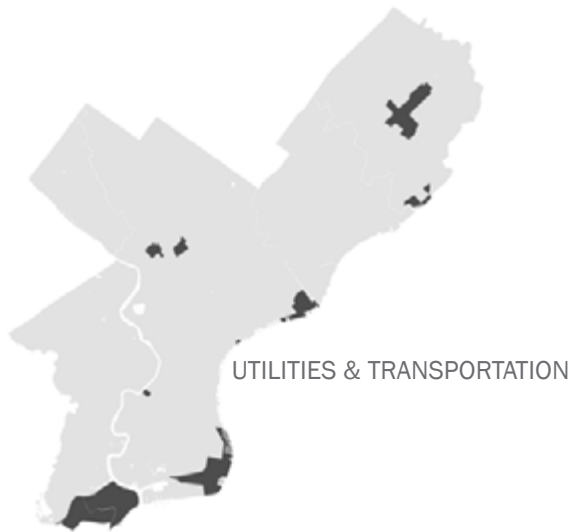
In addition, two new mixed-use classifications are proposed, reflecting Philadelphia's fine-grained texture and recognizing that, in many places, low-impact industrial uses currently intermingle with commercial and residential uses. Additionally, these classifications would allow for a more rational and managed transition to new uses in older industrial areas while protecting the viability of established industrial businesses. Two industrial mixed-use zones are proposed – an Industrial-Commercial Mixed-Use (ICMU) zone and an Industrial Residential Mixed-Use (IRMU) zone.



## PROPOSED INDUSTRIAL ZONING

- UTILITIES & TRANSPORTATION
- HEAVY INDUSTRIAL
- GENERAL INDUSTRIAL
- LIGHT INDUSTRIAL
- INDUSTRIAL RESIDENTIAL MIXED USE
- INDUSTRIAL COMMERCIAL MIXED USE

Figure 34: Proposed Industrial Zoning  
 Source: Interface Studio, ERA, ICIC



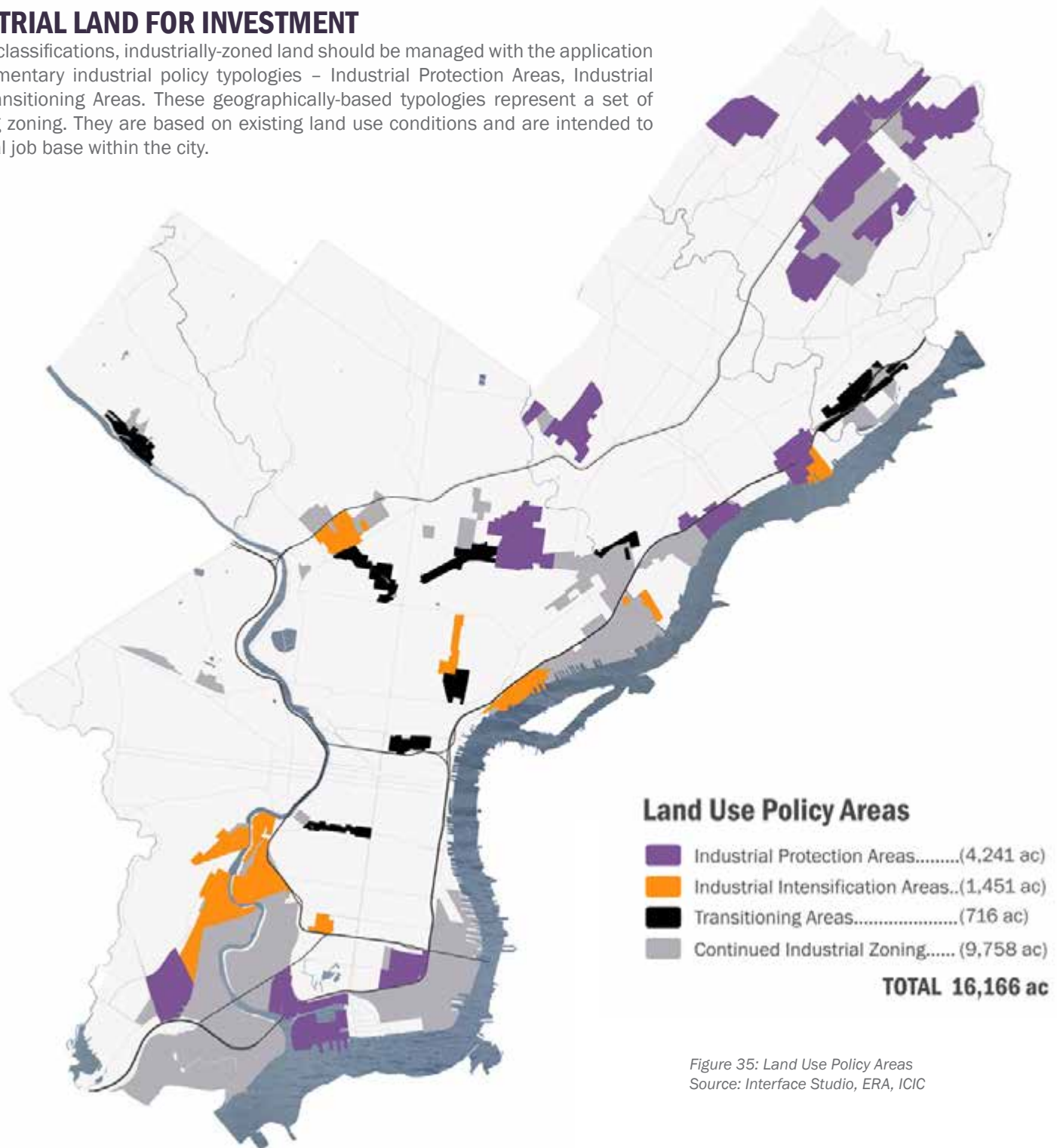
An initial zoning remapping is submitted based upon the following information:

- > The amount of land needed to meet the industrial potential outlined in the market analysis;
- > The market trends impacting industrial districts across the city;
- > Proximity to infrastructure that supports industrial retention and growth;
- > Proximity to residential communities; and
- > The existing intensity of industrial use.

The purpose of this map is simply to jump start discussions about zoning remapping. Re-mapping the city's industrial uses according to updated categories will be a difficult process that must be coordinated by the Philadelphia City Planning Commission and affected communities through a transparent planning process.

## POSITIONING INDUSTRIAL LAND FOR INVESTMENT

In addition to updated zoning classifications, industrially-zoned land should be managed with the application of three distinct but complementary industrial policy typologies – Industrial Protection Areas, Industrial Intensification Areas, and Transitioning Areas. These geographically-based typologies represent a set of policy interventions, including zoning. They are based on existing land use conditions and are intended to protect and grow the industrial job base within the city.

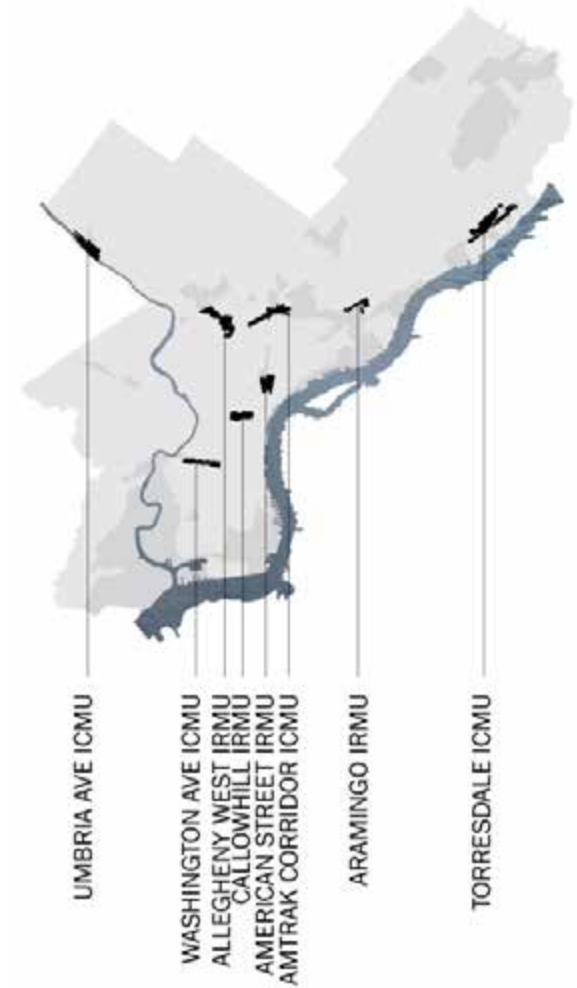


# TRANSITIONING AREAS

Some of Philadelphia’s industrially-zoned land is no longer suitable for intensive industrial use, with many facilities only marginally viable for modern industrial formats or viable for smaller, niche or artisanal industry. Such areas may lack the transportation infrastructure required by modern industry, site footprints may be too small, or they may be located within a dense urban fabric of residential neighborhoods. In many instances, industrial land within these areas faces market pressure from residential or commercial activity.

In such cases, transitions should be managed in an organized manner in order to support viable and appropriate industrial businesses within the area - including artisanal and craft activities that provide jobs and identity to a community without the high impacts. The pace and extent of transition should be guided by a master-planning process involving community stakeholders. As shown in Figure 3, the Transitioning Areas total 627 acres across the City and include areas proposed for industrial mixed-use zoning in urban industrial districts such as Callowhill, American Street and parts of Hunting Park West.

The Transitioning Areas should be encouraged to retain compatible industrial employment where possible, but underutilized and vacant parcels may be considered for redevelopment to alternative uses. It is recommended that for each Transitioning Area, the current building area utilized by industrial businesses be benchmarked as a starting point for calibrated retention over a predetermined period of time, perhaps even requiring replacement of lost industrial space with redevelopment. In addition, any rezoning from industrial to other uses should occur only in tandem with other policy interventions outlined herein aimed at ensuring a net gain in vital jobs-producing land in Philadelphia.



**TRANSITIONING AREAS & EMPLOYMENT DENSITY, 2009**

TRANSITION NAME	# PARCELS	TOTAL ACREAGE	INDUSTRIAL EMPLOYMENT	EMPLOYMENT DENSITY (EMPL/ACRE)
ALLEGHENY WEST ICMU	479	121	280	2.31
AMERICAN STREET IRMU	1035	70	615	8.82
ARAMINGO IRMU	172	39	287	7.41
CALLOWHILL ICMU	247	65	656	10.07
TORRESDALE ICMU	113	182	792	4.35
UMBRIA ICMU	46	100	131	1.31
WASHINGTON ICMU	500	50	468	9.32
AMTRAK CORRIDOR ICMU	401	89	577	6.50
<b>Total</b>	<b>2,993</b>	<b>716</b>	<b>3,805</b>	<b>(avg) 6.3</b>

# INDUSTRIAL PROTECTION AREAS

The City has many vibrant, employment-rich industrial districts and corridors. Such areas provide valuable jobs and tax revenues and must be protected. These areas should receive regulatory support and be provided with market certainty that land will remain industrial-zoned. In such cases, Industrial Protection Areas (IPAs) should be created in order to reinforce existing industry nodes centered in these locations. It is recommended that IPA status be considered for 4,241 acres of the City’s most vital industrial lands that, with nearly one third of all industrial jobs located within them, have 37% greater job density (jobs/acre) than the average industrial parcel in Philadelphia

Based on similar policy typologies in Chicago (Planned Manufacturing Districts – PMDs) and New York (Industrial Business Zones - IBZs), IPAs are demarcated as areas that are protected for industrial users, and receive regulatory support and “market certainty” that land use policy will remain industrial. The key to the long-term success of Industrial Protection Areas is establishing a set of criteria that are easily verifiable, enforceable, and specific to Philadelphia and its industrial development patterns. Chicago and New York have followed different paths to the creation of these areas: Chicago established PMDs through the creation of formal Special Districts that satisfied certain land use and economic criteria, while New York used an informal approach by designating land in and around existing industrial parks as IBZs. It is recommended that IPAs borrow from the approaches in both these cities by locating them around existing PIDC or city-designated industrial parks or zones and establishing specific criteria that can be continually reviewed and updated as economic trends and location patterns evolve.

As shown in Figure 2, the initial eight Industrial Protection Areas range from 145 acres (Wissinoming) to 2,141 acres (Northeast), with industrial employment between 1,309 and 17,568. In keeping with this distribution, and considering that the criteria established will need to be flexible to accommodate new IPAs in future, it is recommended that each IPA should have contiguous land to accommodate an adequate concentration of industrial employment and large potential users. These areas should include large, undeveloped parcels and/or underutilized areas that are prepped for redevelopment and able to support significant square footage. Based on specific industrial clusters that are likely to grow and remain in the city, and their associated real estate typologies, we recommend that IPAs comprise contiguous properties of at least 50 acres. In addition IPAs should either currently have, or demonstrate the potential to accommodate significant long-term industrial employment. Based on the employment distribution in the eight proposed IPAs, we recommend that each encompass at least 1,000 industrial jobs.

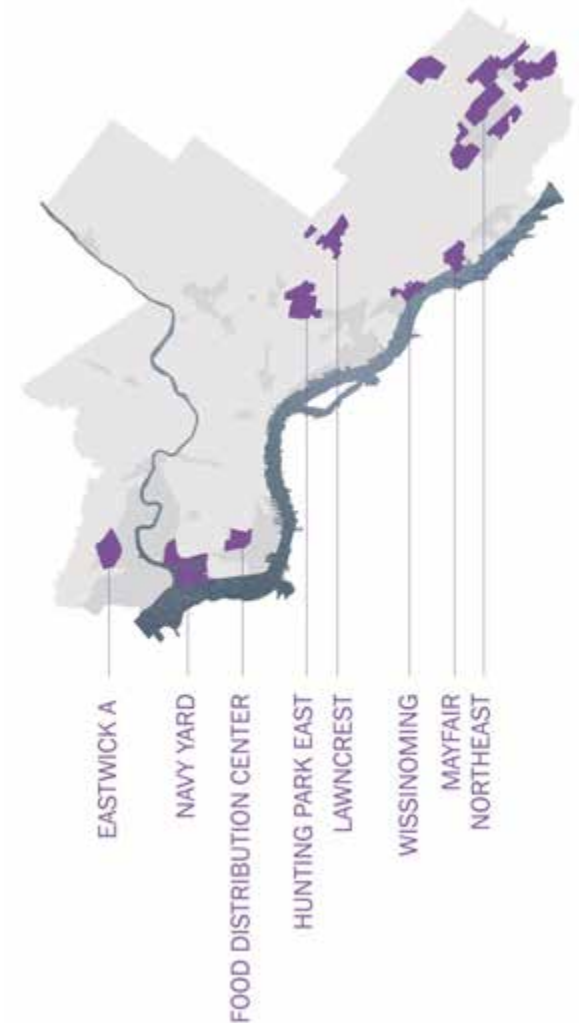
## INDUSTRIAL PROTECTION AREAS, EMPLOYMENT DENSITY, 2009

TRANSITION NAME	# PARCELS	TOTAL ACREAGE	INDUSTRIAL EMPLOYMENT	EMPLOYMENT DENSITY (EMPL/ACRE)	ACREAGE PRIMARILY VACANT (LAND)	ACREAGE WITH VACANT BLDGS	VACANT BLDGS SQFT	UTILIZED BLDG SQFT
EASTWICK A	47	356	1,760	4.9	55.8	12.1	94,913	2,660,714
FOOD DISTRIBUTION CENTER	47	192	3,436	17.9	1.9	0.0	0	2,188,207
HUNTING PARK EAST	432	412	4,269	10.4	2.7	29.3	553,659	7,214,150
LAWNCREST	152	330	2,529	7.7	19.0	0.1	4,100	3,347,391
MAYFAIR	127	181	1,950	10.8	9.9	1.3	66,927	2,882,139
NAVY YARD	20	485	1,440	3.0	26.0	0.0	0	2,977,489
NORTHEAST	330	2,141	17,568	8.2	332.5	31.9	320,116	17,691,003
WISSINOMING	152	145	1,309	9.0	10.5	0.0	0	1,909,798
<b>Total</b>	<b>1,307</b>	<b>4,241</b>	<b>34,263</b>	<b>(avg) 8.1</b>	<b>458</b>	<b>75</b>	<b>1,039,715</b>	<b>40,870,891</b>

The primary goal of the Industrial Protection Areas is to provide the private investment and development market with regulatory certainty that the area will remain an industrial zone. This certainty provides strong incentives to encourage continued industrial development - including improvement, expansion and relocation within the zone.

- > The IPA should generally prohibit future non-industrial uses and dis-allow spot zoning changes or variances within its boundaries, or allow them in a very limited fashion.
- > Residential uses should be specifically excluded because they constrain industrial activity and are in conflict with many types of uses in the industrial area.
- > Development and rezoning proposals should require an evaluation of the impacts the zoning change or inclusion will have on industrial land and its employment and show whether the uses could be accommodated elsewhere in the city.
- > This evaluation should also assess the impact on industrial viability of the entire IPA. The city should be particularly vigilant against small conversions to non-industrial uses that can erode the viability of the area.
- > A small percentage (~10-20%) of retail or commercial uses may be allowed as-of-right, particularly in support services and amenities for the industrial users.

The performance of the Industrial Protection Areas should be reviewed in terms of employment growth, intensity of land use, and fiscal contribution periodically to insure the area functions at a high-level over time. In addition, area-wide capital and infrastructure needs should be identified and coordinated in order to ensure long-term industrial viability.



# INDUSTRIAL INTENSIFICATION AREAS

Apart from the Industrial Protection Areas and Transitioning Areas, there are approximately 1,540 acres of industrial land that have the potential to accommodate more dense and productive industrial uses, as shown in Figure 3. In addition to creating zoning certainty within these Industrial Intesification Areas, the public sector (perhaps in partnership with the private sector) should consider targeted infrastructure improvements and site pre-development – including environmental remediation where appropriate – in order to leverage private investment leading to redevelopment and job creation. Additionally, these areas should undergo master planning processes to determine the appropriate niche cluster segments; detailed marketing and redevelopment plans should be directed accordingly. The payoff from the public sector’s efforts to increase the intensity of the use of these areas will be an additional 5,000 to 8,000 new industrial jobs.

Several priorities will help to guide repositioning of these underutilized areas:

- Properties should be assembled and consolidated wherever possible in order to create larger sites appropriate for redevelopment for new industrial uses.
- The infrastructure requirements of target cluster industries should be closely evaluated to enable focused investments aimed at meeting the needs of modern and advanced industrial users.
- Density bonuses, expedited permitting or other incentives should be considered for projects that will retain or grow target cluster jobs
- Master plans should identify the niche cluster segments that best match each area’s assets, and marketing and redevelopment plans should be directed accordingly.



**REPOSITIONING DISTRICTS, EMPLOYMENT DENSITY, 2009**

REPOSITION NAME	# PARCELS	TOTAL ACREAGE	INDUSTRIAL EMPLOYMENT	EMPLOYMENT DENSITY (EMPL/ACRE)
61ST STREET	55	142	45	0.3
AMERICAN STREET	582	62	697	11.2
AUTO MALL	63	206	101	0.5
CONRAIL / CRAMPS	25	134	69	0.5
DUPONT CRESCENT	170	117	197	1.7
FRANKFORD CREEK	12	41	277	6.8
SUNOCO NORTH YARD	1	254	0	0.0
HUNTING PARK WEST	160	167	1473	8.8
KINGSESSING	261	115	516	4.5
NORTHERN SHIPPING	15	162	296	1.8
QUARTERMASTER	9	51	48	0.9
<b>Total</b>	<b>1,353</b>	<b>1,451</b>	<b>3,722</b>	<b>(avg) 3.4</b>



## POSITIONING INDUSTRIAL LAND FOR INVESTMENT - CONCEPT PLANS

In order to demonstrate the opportunity costs of non-industrial development within Industrial Intensification Areas, the consultant team was asked to develop conceptual studies of how two key locations might be positioned for renewed industrial development. The studies address both sides of the lower Schuylkill River stretching from University City to the Philadelphia International Airport, and the vacant portions of the Port Richmond site along the Delaware River between Penn Treaty Park and Allegheny Ave.

After the conceptual plans were developed, the consultant team provided estimates of the fiscal and economic impacts of redeveloping each site. The economic impacts analysis evaluates direct and total jobs, payroll, and economic output. The intent is to test alternative industrial use scenarios and development programs to demonstrate the potential physical and economic benefits that could result from investments in these locations. (As such, the studies do not represent a fixed development strategy for these sites nor do they represent concepts endorsed by the current owners.)

This exercise identified a number of opportunities to make better use of underutilized industrial land and redevelop vacant industrial land in areas that are appropriate for continued industrial activity. In order to determine the specific redevelopment opportunities, however, thorough master plans should be completed for each of the sites to align policies and investments with industrial opportunities, involving a variety of stakeholders.



*Aerial view of Sunoco North Yard property on the eastern bank of the Lower Schuylkill.*



*Aerial view of the Port Richmond site between Penn Treaty Park and Allegheny Avenue.*

# PORT RICHMOND

The Port Richmond rail yard site is 122 acre site along the Delaware River and includes vacant Conrail lands and an adjacent vacant property to the south. Conrail's site continues north to Allegheny Avenue; the northern portion; not considered here, is occupied by freight rail facilities and an asphalt plant. The southern portion is the former site of the Cramp's Shipyard, the greatest of Philadelphia's 19th century shipyards. The site is one of the largest contiguous industrial development sites in the city and presents a tremendous opportunity for activity and employment.

Despite the proximity to Philadelphia's river wards, the waterfront, and I-95, the site is isolated due to inadequate access and topographic features that effectively form a wall along Richmond Street. PennDOT's current expansion of I-95 including the redesigned "Girard Interchange" have laid the groundwork to improve connections to the property. Once complete, the new Girard Interchange will provide direct highway access to the site and improve Richmond Street, which is the Conrail property's main frontage road.

Because of its size and location, this site may reasonably support other uses including retail and commercial; however, this concept is intended to illustrate the benefits of redeveloping large, contiguous areas of industrial land. Using the real estate products best suited for modern industrial development as identified in the market analysis, the intent was to identify a set of broad design principles to help guide the development of infill industrial uses in the city.

## PRINCIPLES GUIDING THIS CONCEPT INCLUDE:

- Provision of a 100' waterfront setback to allow a continuous waterfront trail and public space linked to the rest of the Central Delaware. The piers are opportunities for new passive and recreation activities.
- An extended street network to ensure that the industrial development provides access to the waterfront and the new jobs from nearby neighborhoods.
- An extended Beach Street to provide vehicular access to the Central Delaware.
- Stormwater management strategies that creatively integrate the Philadelphia Water Department's stormwater guidelines into the site design. Landscaped and natural stormwater retention are aligned across from the waterfront setback to provide an engaging waterfront experience.
- A mix of building types and industrial activities that respond to available infrastructure and the proximity of industrial uses. Smaller, flex buildings are proposed on the southern end of the site while larger manufacturing and distribution are proposed abutting the Conrail freight lines next to Riverside Materials.
- Reduced surface parking by ensuring access to the existing light rail system and utilizing existing parking under I-95 as a shared resource.
- The potential integration of green roofs and solar panels as feasible to reduce long-term energy costs.

The concept plan for the Port Richmond site includes a mixed-use development of 1.1 million square feet including 256,000 square feet of manufacturing space, 483,000 square feet of warehousing/distribution, and 410,760 square feet of flex space.

Using industry standard ratios of jobs per square foot, AECOM estimates the number of jobs that could be generated by the redevelopment. In total, the Port Richmond could generate up to 2,349 direct jobs. Based on US Bureau of Labor Statistics industry-specific wages from 2008, extrapolated to 2010 with a three percent annual growth rate, the direct payroll totals \$99 million. The average annual wages range from \$39,600 for jobs within the flex space up to \$53,500 for jobs within the manufacturing space.

The jobs generated from the redevelopment and occupancy of the Port Richmond site will have multiplier effects throughout the city economy. Regional economic impact analysis traces spending through an economy and measure the cumulative effects of that spending. AECOM uses employment and average wage by use to assess total economic impacts throughout the city. The redevelopment will create 2,349 direct jobs and \$99.1 million in direct payroll, as shown in Figure 9. Applying RIMS II multipliers from the US Bureau of Economic Analysis specific to each use within the redevelopment, AECOM estimates the redevelopment could directly create \$2 billion in direct economic output. Including the ripple effects of the redevelopment, total economic impacts will be 4,055 jobs, \$130 million of payroll, and \$2.4 billion economic output as shown in Figure 10.

The new development at the Port Richmond site will generate wage tax, BPT, and property tax for the city. To determine the potential wage tax generation, AECOM uses the employee generation figures and average annual wage estimates shown above and multiplied the figures by the wage tax rate based on employee residency assuming an equal split between residents and non-residents.



Figure 36: Port Richmond Site Concept Plan and Economic & Fiscal Impacts  
Source: Interface Studio

To determine BPT, AECOM determined BPT generated per worker by industry from 2006 and assumed a conservative one percent annual growth rate. To determine property tax, AECOM determined total market value through an estimate of net operating income (NOI) based on industry-specific rent to NOI ratios and a ten percent capitalization rate. Applying the city pre-determined assessment ratio and official tax rate yields the total potential property tax. AECOM estimates \$10 million (\$3.7 million in wage tax, \$4.2 million in BPT, and \$2.1 million in property tax) in total tax to the city each year.

**PORT RICHMOND SITE PROPOSED DEVELOPMENT**

Source: Interface Studio

	PROPOSED DEVELOPMENT (SF)
MANUFACTURING	256,000
WAREHOUSING/DISTRIBUTION	483,000
FLEX	410,760
<b>Total</b>	<b>1,149,760</b>

**PORT RICHMOND SITE REDEVELOPMENT DIRECT ECONOMIC IMPACTS**

Source: Bureau Of Labor Statistics; Aecom

	JOBS PER SQFT	DIRECT JOBS GENERATED	PAYROLL (MILLIONS)	AVERAGE ANNUAL WAGE (2010)
MFG	800	320	\$17	\$53,500
WH/DIST	1,250	386	\$17	\$43,800
FLEX	250	1,843	\$65	\$39,800
<b>Total</b>		<b>2,349</b>	<b>\$99</b>	

**PORT RICHMOND SITE REDEVELOPMENT TOTAL ECONOMIC IMPACTS**

Source: Rims II Calculations By Aecom

	EMPLOYMENT	PAYROLL (MILLIONS)	ECONOMIC OUTPUT (MILLIONS)
DIRECT ECONOMIC IMPACT	2,349	\$99	\$1,997
INDIRECT/INDUCED ECONOMIC IMPACT	1,706	\$31	\$422
<b>Total Economic Impact</b>	<b>4,055</b>	<b>\$130</b>	<b>\$2,420</b>

**FISCAL REVENUE ESTIMATE**

Source: City Of Phila Department Of Revenue, Brt, Aecom

TAX	POTENTIAL REVENUE (\$, MILLIONS)
WAGE TAX	\$3.7
BUSINESS PRIVILEGE TAX	\$4.2
PROPERTY TAX	\$2.1
<b>Total</b>	<b>\$10.0</b>

# THE SUNOCO NORTH YARD & THE LOWER SCHUYLKILL RIVER

The Lower Schuylkill River includes two industrial districts surveyed for this study – the Southwest District and the Grays Ferry District – and represents a significant opportunity for new industrial growth from research to distribution due to location and infrastructure. Any site along the lower Schuylkill River is within 5 to 15 minutes of both University City and the Philadelphia International Airport and, Center City, the rapidly developing Navy Yard and the Packer Marine Terminal and intermodal yard are all less than 20 minutes away. I-95 and I-76 are readily accessible and some of the city’s most valuable freight rail lines traverse the area. In short, these sites are at the convergence of Philadelphia’s most important industrial assets and remain critical opportunities to expand job and economic growth into the future.

The land survey indicates that there is a total of 632 acres of vacant land and buildings in these two districts. A portion of this vacant land is either owned by the airport or zoned commercial -including sites along I-95 near the Airport and the U.S. Army Quartermaster Plaza site on Oregon Avenue. The majority of vacant land zoned industrial is concentrated in a few locations: near Passyunk Avenue along the Schuylkill River; nestled around the rail corridor south of Bartram’s Garden and; the recently vacated Dupont Marshall Laboratory site.

In addition to vacant land, 68% of the city’s underutilized industrial land is concentrated along the lower Schuylkill River. Defined in this study as sites over 5 acres in size, with less than 10% building coverage and, currently used for surface parking, scrap or salvage yards, waste transfer or recycling - these underutilized sites represent opportunities for more intensive industrial use in conjunction with the development of nearby vacant sites. In the lower Schuylkill River, the major underutilized sites include: the Sunoco North Yard east of the River

and; scattered sites west of the Schuylkill River between Passyunk Avenue and the auto mall to the south and, the freight rail line and Bartram’s Garden to the north.

Taken together, the vacant and underutilized sites form five opportunity areas along the lower Schuylkill River. A combination of location, access to infrastructure, distance from residential uses and scale were used to identify broad redevelopment opportunities for each site. These include:

- A THE DUPONT CRESCENT** includes the former Dupont Marshall Laboratories and currently vacant land east of 34th Street along the River. These 52 acres represent a significant opportunity for mixed-use redevelopment due to their location at the doorstep of the University of Pennsylvania. The site could conceivably be designed to accommodate both research and office use for advanced manufacturing as well as new housing, University space and retail. The opportunity is to integrate the redevelopment of this site with the proposed extension of the Schuylkill Banks Trail, forge connections to the River from the nearby Forgotten Bottom and Grays Ferry neighborhoods and, pursue a dense redevelopment approach to maximize the value of site’s waterfront location and encourage productive use by nearby universities in keeping with the site’s industrial heritage.
- B BOTANIC AVENUE** west of the Schuylkill River is within 6 minutes of University City and immediately adjacent to the University of Sciences. Approximately 46 acres of space could be assembled to support advanced manufacturing or research and development activities associated with nearby universities. Infrastructure improvements are needed to make this a viable development site including the re-establishment of 49th Street and improved connections to University City. Waterfront access will also be important as an extension of the Schuylkill Banks is proposed in this area.
- C THE SUNOCO NORTH YARD** is an underutilized part of the Sunoco Philadelphia Refinery complex stretching south to the Navy Yard. The North Yard is 254 acres of space that is almost entirely unused. It is divided into two separate sites by the CSX Freight Rail corridor that connects to the Packer Marine Terminal and intermodal yard. Almost all of the former tanks and refinery facilities have been removed from the site leaving only a network of pipelines that stretches across both sites, and an LNG terminal at its northern edge. With direct access to I-76 and completely buffered from residential areas, the site is an opportunity for new distribution and warehousing uses that will benefit from the site’s rail infrastructure and proximity to the airport. Alternatively, portions of the site could be redeveloped for research, development and production to further support University City if connections were improved along 34th Street. Due to the sites’ size, single ownership and underutilization, the Sunoco North Yard and the Marshall Laboratories constitute priority redevelopment opportunities along the lower Schuylkill River.
- D EASTWICK B** comprises 363 acres of vacant and underutilized property between Passyunk Avenue and Bartram’s Garden. The area has excellent connections to I-76 and the airport and is separated from nearby residential uses by the Septa R1 rail line. These characteristics make this area an opportunity for new distribution and manufacturing which would reinforce the investment recently made in the Philadelphia Regional Produce Market on Essington Avenue. Although redevelopment in this area will require a significant amount of planning and land assembly given the current uses and ownership patterns, the area has already been targeted by PIDC for expansion and replication of the successful Eastwick A industrial park to the south.
- E NAVY YARD EXPANSION** includes 102 acres of vacant and underutilized property west of the Navy Yard’s new Tastykake bakery facility and Girard Point. A stone’s throw from the Philadelphia International Airport and fifteen minutes from University City, this area is extremely well-buffered from any non-industrial uses is a natural candidate for expansion of the successful recent industrial development in the Navy Yard. Existing uses on the site include a concrete plant, a scrap operation on Schuylkill Pier 3, a Sunoco parking lot, and several vacant parcels.

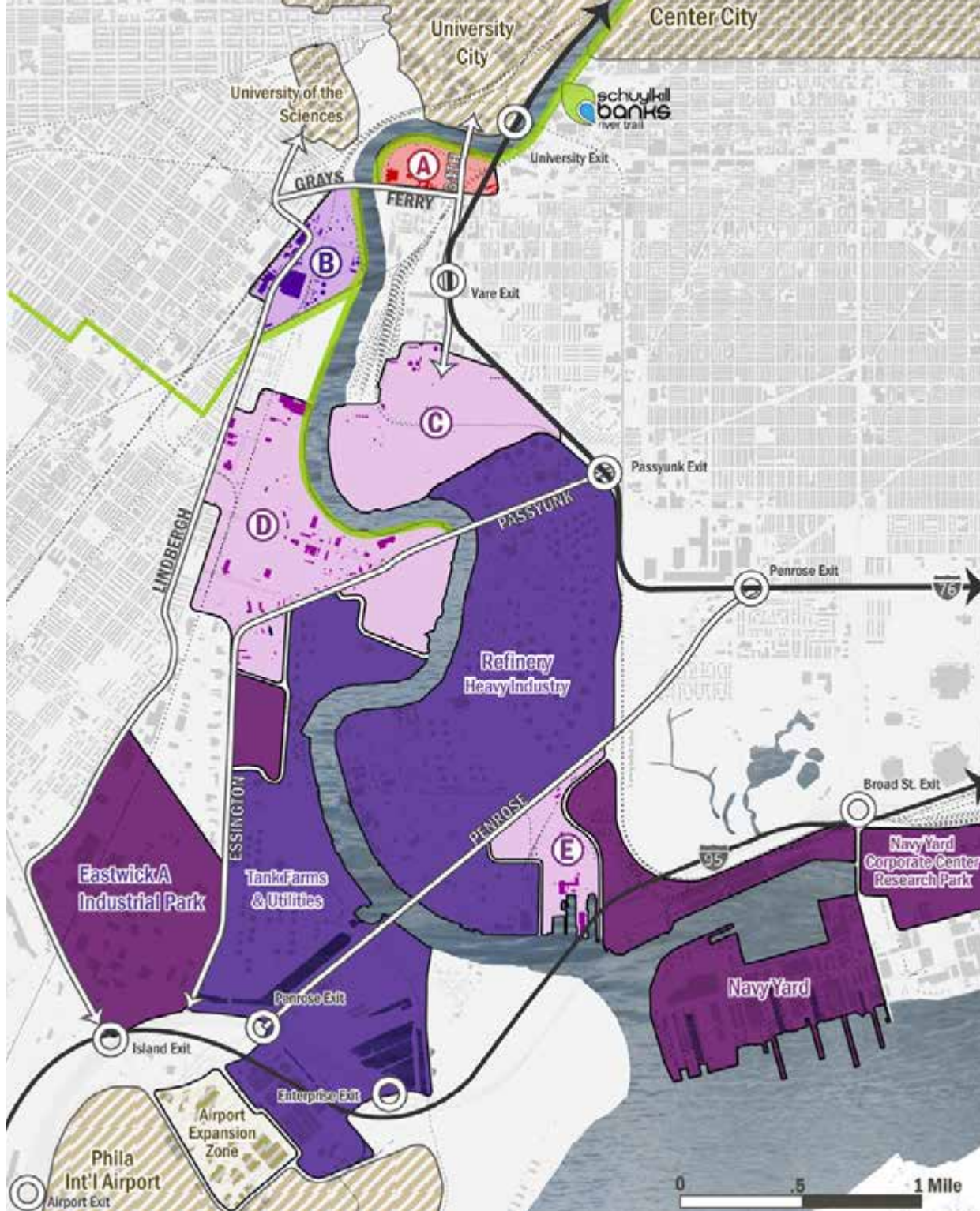


Figure 37: Lower Schuylkill Sites Concept Plan  
Source: Interface Studio

- A DUPONT CRESCENT**  
TIME TO UNIVERSITY CITY: 4 MINUTES  
TIME TO PHL AIRPORT: 10 MINUTES  
OPPORTUNITY: RESEARCH/MIXED-USE  
52 ACRES
- B BOTANIC AVENUE**  
TIME TO UNIVERSITY CITY: 6 MINUTES  
TIME TO PHL AIRPORT: 12 MINUTES  
OPPORTUNITY: ADVANCED MANUFACTURING  
46 ACRES
- C SUNOCO NORTH YARD**  
TIME TO UNIVERSITY CITY: 9 MINUTES  
TIME TO PHL AIRPORT: 11 MINUTES  
OPPORTUNITY: PRODUCTION/DISTRIBUTION  
254 ACRES
- D EASTWICK B**  
TIME TO UNIVERSITY CITY: 8 MINUTES  
TIME TO PHL AIRPORT: 9 MINUTES  
OPPORTUNITY: PRODUCTION/DISTRIBUTION  
363 ACRES
- E NAVY YARD EXPANSION**  
TIME TO UNIVERSITY CITY: 15 MINUTES  
TIME TO PHL AIRPORT: 5 MINUTES  
OPPORTUNITY: PRODUCTION/DISTRIBUTION  
102 ACRES

A concept plan for the Sunoco North Yard was developed and includes a mixed-use redevelopment of nearly three million square feet including 298,735 square feet of flex space, 896,203 square feet of manufacturing space, and 1,792,407 square feet of warehousing space.

Using industry standard ratios of jobs per square foot, AECOM estimates that the number of jobs generated by the redevelopment could be up to 3,749 direct jobs. Based on US Bureau of Labor Statistics industry-specific wages from 2008, extrapolated to 2010 with a three percent annual growth rate, the payroll associated with the 3,749 direct jobs totals \$170 million. The average annual wages range from \$39,600 for jobs within the flex space up to \$53,500 for jobs within the manufacturing space.

Figure 5: Sunoco North Yard Redevelopment Direct Economic Impacts

The jobs generated from the redevelopment and occupancy of the Sunoco North Yard site will create multiplier effects throughout the city economy. Using the same methodology completed for the Sunoco North Yard site, AECOM uses employment and average wage by use to assess total economic impacts throughout the city. The redevelopment will create 3,749 direct jobs and \$170 million in direct payroll, as shown in Figure 5 Figure 9. Applying RIMS II multipliers from the US Bureau of Economic Analysis specific to each use within the redevelopment, AECOM estimates the redevelopment could directly create \$2.1 billion in economic output. Including the ripple effects of the redevelopment, total economic impacts will be 5,618 jobs, \$216 million of payroll, and \$2.7 billion economic output as shown in Figure 10.

### FISCAL IMPACTS

The new development at the Sunoco North Yard site will generate wage tax, BPT, and property tax. AECOM followed the same methodology used in the Port Richmond site fiscal revenue analysis and estimates \$17.2 million (\$6.3 million in wage tax, \$4.8 million in business privilege tax, and \$6 million in property tax) in total tax to the city each year.

Figure 7: Sunoco North Yard Fiscal Revenue Estimate

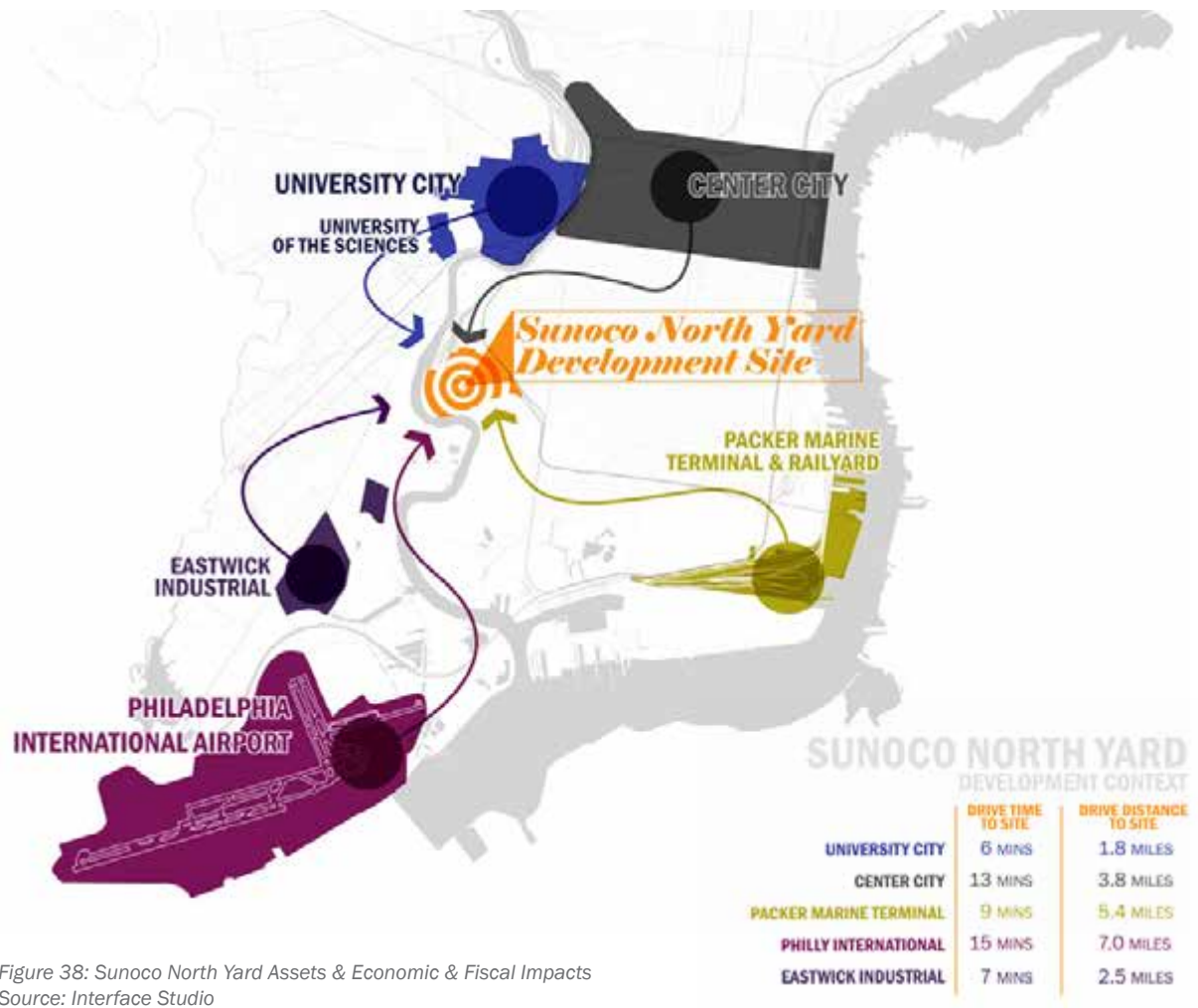


Figure 38: Sunoco North Yard Assets & Economic & Fiscal Impacts  
Source: Interface Studio

### SUNOCO NORTH YARD PROPOSED DEVELOPMENT

Source: Interface Studio

	PROPOSED DEVELOPMENT (SF)
MANUFACTURING	896,203
WAREHOUSING/DISTRIBUTION	1,792,407
FLEX	298,735
<b>Total</b>	<b>2,987,345</b>

### SUNOCO NORTH YARD REDEVELOPMENT DIRECT ECONOMIC IMPACTS

Source: Bureau Of Labor Statistics; Aecom

	JOBS PER SQFT	DIRECT JOBS GENERATED	PAYROLL (MILLIONS)	AVERAGE ANNUAL WAGE (2010)
MFG	800	1,120	\$60	\$53,500
WH/DIST	1,250	1,434	\$63	\$43,800
FLEX	250	1,195	\$47	\$39,600
<b>Total</b>		<b>3,749</b>	<b>\$170</b>	

### SUNOCO NORTH YARD REDEVELOPMENT TOTAL ECONOMIC IMPACTS

Source: Rims II Calculations By Aecom

	EMPLOYMENT	PAYROLL (MILLIONS)	ECONOMIC OUTPUT (MILLIONS)
DIRECT ECONOMIC IMPACT	3,749	\$170	\$2,138
INDIRECT/INDUCED ECONOMIC IMPACT	1,869	\$46	\$522
<b>Total Economic Impact</b>	<b>5,618</b>	<b>\$216</b>	<b>\$2,660</b>

### FISCAL REVENUE ESTIMATE

Source: City Of Philadelphia Department Of Revenue, Brt; Aecom

TAX	POTENTIAL REVENUE (\$, MILLIONS)
WAGE TAX	\$6.3
BUSINESS PRIVILEGE TAX	\$4.8
PROPERTY TAX	\$6.0
<b>Total</b>	<b>\$17.2</b>

## SUPPORTING RECOMMENDATIONS

In addition to the land and zoning strategies outlined above, several additional strategies are proposed in order to support and expand Philadelphia's industrial economy. These additional recommendations are leveraging existing strengths for advanced manufacturing, "greening" industry, supporting traditional manufacturing, developing the workforce, and marketing and advocating on behalf of the industrial sector.

### LEVERAGE STRENGTHS FOR ADVANCED MANUFACTURING

The greatest opportunity to expand Philadelphia's industrial base is the advanced manufacturing sector. This segment of the industrial economy is marked by a dynamism that, if effectively managed, may very well offset the attrition of traditional industrial businesses. Defined as "manufacturing that entails rapid transfer of science and technology in manufacturing processes and products"<sup>1</sup> the City's prestigious universities and research hospitals could serve as the foundation for expansion of manufacturers reliant on product innovation for growth. The City and its related economic development entities should pursue strategies that provide a supporting environment for growth of advanced manufacturing and identify methods to better connect its existing research centers to the industrial base.

The presence of large research institutions alone is not sufficient to promote the growth of advanced manufacturing in Philadelphia. Public intervention is critically important in shaping the physical and regulatory environment necessary to support emerging firms. For example, the Commonwealth of Pennsylvania's designation of Keystone Innovation Zones (KIZ) at the University City Science Center and the Navy Yard in 2005 was a key step in the establishment of a regulatory environment to attract technology businesses and advanced manufacturers to the City.

As a result of the KIZ designations, the development of new speculative industrial facilities has begun to occur. However, much additional work will be necessary to pave the road for the efficient transfer of technology from research centers to manufacturers. As noted in the preceding conceptual site plans, a portion of the Southwest Industrial District along the Lower Schuylkill River represents an opportunity to develop an advanced manufacturing park with strong physical connections to the University City research institutions. Targeted public investment in infrastructure will be necessary in order to reposition this industrial district to take advantage of its locational advantages. However, such an investment would serve as a catalyst for private investment, development, and employment.

Presently, advanced manufacturing in the City is heavily concentrated in the health sciences. This is a logical outcome of Philadelphia's long history of strength in the medical and pharmaceutical industries. However, this concentration in a single industrial cluster places the City at some risk if the healthcare industry were to undergo significant structural changes in the future. As a result, diversification of the advanced industrial clusters represented in Philadelphia should be an important part of the City's strategy. The U.S. Department of Energy's recent designation of The Clean Energy Campus at The Navy Yard as an Energy Innovation Hub represents an opportunity to broaden the range of advanced manufacturing in the City, not only in research and development but specifically in tying research and development to the manufacture and distribution of new products and technologies.

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1 Science and Technology Policy Institute, Draft White Papers on Advanced Manufacturing Questions, April 5, 2010, pp. iii.

## “GREEN” INDUSTRY

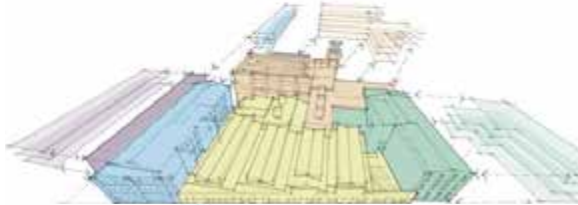
Positioning Philadelphia as a player in the rapidly emerging sustainable industrial sector could pay dividends for the industrial sector as a whole. As the market for new products aimed at improving energy efficiency, providing cleaner energy sources, and better managing the storage and distribution of energy grows in the coming decades, efforts such as the Energy Coordinating Agency’s Green Jobs Training Center in Kensington among others will provide Philadelphia with a chance to develop a strong competitive advantage relative to other regions in this sector. This will provide several benefits:

- Connect Philadelphia firms to a key driver of future industrial demand;
- Increase the level of advanced manufacturing in the City, and;
- Diversify the range of advanced manufacturing in Philadelphia.



Focus on sustainable product development should not be the sole method for “greening” Philadelphia’s industry. An effort to improve the sustainability of industrial facilities and processes, and lessen the environmental impacts of industry must be a part of the City’s policy going forward, since this is a component of the City’s GreenWorks plan. Recycling land and buildings for modern industrial uses is an inherently more sustainable approach than sprawling to new and farther flung greenfield sites in the fringes of the region. The rapid expansion of green building techniques over the last decade, specifically structures that have received either the US Green Building Council’s Leadership in Energy and Environmental Design (LEED) certification or the federal government’s EnergyStar designation, demonstrates both the demand and benefits of sustainable development. Demand for sustainable buildings and sites notwithstanding, some level of public support will be required to transition the City’s industrial sector to sustainable methods of energy use, material flows, water use, and waste management due to the patterns and features of historic industrial development in Philadelphia. The City’s GreenWorks plan established a framework for this transition and the creation of financing programs such as the existing GreenWorks Loan Program for energy efficiency and the Philadelphia Water Department’s revolving loan program to upgrade privately-owned storm water management facilities are examples of early efforts by the City to achieve this goal.





Philadelphia's history as the Workshop of the World left the City with another legacy: scores of multi-story industrial loft buildings that are functionally obsolete for re-use by modern industrial businesses. Yet, these structures may have other value. They are genuine industrial artifacts of that by-gone era, with high ceilings, giant windows, wood flooring, concrete columns, and exposed brick – and are perceived as unique and valuable by a segment of potential users. The City currently has no policy regarding such sites. While a small number have been converted by the private real estate market into residential condominiums, mixed-use or institutional developments - particularly in revitalizing sections of the City - the majority continue to lie underutilized or completely fallow in neighborhoods that would benefit greatly from new jobs and investment.

These buildings represent an opportunity to foster the creative and artisanal industries that are on the rise in Philadelphia, generating “buzz” about the City and enhancing its cultural identity. Often accessible via transit and located in what are perceived as “emerging” sections of the City, these spaces offer an authentic, tactile link to the City's industrial past – and a lower-cost alternative to traditional creative office, workshop, or studio space.

### CONTINUE SUPPORT OF TRADITIONAL MANUFACTURING

Given its significance as an employment base and Philadelphia's comparative advantages within the U.S. economy, the City and its related economic development entities will need to continue to support the traditional industrial base. Pursuit of advanced manufacturing and green industry should not come at the expense the City's efforts to provide locations and asset-backed public financing for traditional industrial companies.



Above: Crane Arts Building, 1400 N. American Street

Left: Globe Dye Works Building, 4500 Worth Street

Source: Interface Studio; DIGSAU

## DEVELOP THE WORKFORCE

While working to increase City-wide educational attainment, the City and its related workforce development entities must place a strong emphasis on STEM (Science, Technology, Engineering and Mathematics) education to increase Philadelphia's pool of skilled industrial labor necessary to expand the City's presence in advanced manufacturing. Unless the skills of the City's workforce keep pace with the requirements for positions in advanced manufacturers, the benefits Philadelphia currently enjoys from the density of its labor pool will be lost.

## MARKETING THE CITY FOR INVESTMENT AND GROWTH

An overall marketing strategy should continue to focus on industrial development in the City, highlighting the wide ranging success stories, opportunities, available sites, and incentive programs. While the diversity of industrial activity in Philadelphia is overwhelmingly a source of its strength, this feature has created a fragmented industrial landscape with few opportunities to convene or communicate as a group with shared issues and needs. To some extent, Philadelphia's industrial diversity has fed the misconception that industry is no longer a vital part of the City's economy. Creating an industry-wide forum to communicate common concerns to policymakers, showcase products and capabilities to prospective customers, and recruit and train employees would help to ensure that this critically important component of Philadelphia's economy remains a vibrant part of its future and not become a vestige of its once mighty industrial past.





Above: Tasty Baking's new 345,000 square foot LEED-registered manufacturing and distribution facility at the Navy Yard  
Source: PIDC

