

# THE WATERFRONT

*A Brooklyn Model for Preservation and Change*



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the Steven L. Newman Real Estate Institute,  
Baruch College, CUNY and the Brooklyn Waterfront Research Center,  
NYC College of Technology, CUNY



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*authored by*

Sapna Advani,  
Richard E. Hanley,  
Jack S. Nyman  
*and*  
Jonathan Peters

*and co-authored with the generous contributions of*

Adam Davidson,  
Richard Flanagan,  
Cameron Gordon  
*and*  
Emily Grace

*Prepared by*





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## PREFACE

Communication with life and nature is the heart of humanity. It can be seen in the New York skyline and traced in its waters. Walt Whitman once referred to the Brooklyn Waterfront in the poem “Crossing Brooklyn Ferry,” in words that echo our own passions:

We use you, and do not cast you aside—we plant you permanently within us,  
We fathom you not—we love you—there is perfection in you also, You furnish your  
parts toward eternity, Great or small, you furnish your parts toward the soul.

The waterfront remains the heart of Brooklyn and the soul of Manhattan. Our contemporary society, however, faces the challenges of a fully integrated commercial, industrial and residential community – but we can solve these issues through the power of human interface.

To do so, this report considers the Brooklyn waterfront through two intriguing perspectives: economics and planning. The authors each view the challenges of the waterfront through one of these unique lenses yet arrive at similar conclusions. It was precisely for this effect that we chose to deliver a two-part written report to complement “The Waterfront” conference. I think you will agree that it creates a compelling vehicle for this important debate.

The population of Brooklyn is a community of stakeholders, all of whom are affected by the issues and each should have a voice in the plan of how we live, work and play in waterfront neighborhoods. We entertain this research to consider and understand the framework of industrial, residential and neighborhood perspectives, how to co-exist within these districts and how to create buffer zones to maintain the integrity of each sector. It is also about creating a healthy and sustainable urban environment that contains affordable housing, open space and recreation that can better enrich the lives of city dwellers.

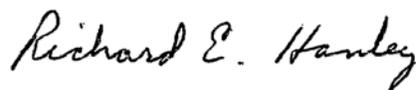
Brooklyn is a historic example of the American industrial legacy, faced with looming dangers of de-industrialization and economic insecurity. These reports address specific fiscal features – analysis data, planning information and regional contexts of Brooklyn – in order to determine the competitive advantages and economic benefits of the area. This will help us re-think the edge condition of the built environment and the water, treating these sensitive areas deservedly as the core features of the Brooklyn waterfront.

Our hopes are that we use the research in this report to determine what we can do to make the city great for tomorrow and to foster a universal appreciation of the waterfront’s future. This report would fail in its ambitions if we did not recognize and acknowledge the important work done by the New York City Department of City Planning, The Port Authority of New York and New Jersey, the New York City Economic Development Corporation and all the gainful community groups, as well as the residents of Brooklyn.

Together we can guide the development of the waterfront community to its poetic and civic potential.



**Jack S. Nyman, Director**  
The Steven L. Newman Real Estate Institute  
Baruch College / CUNY



**Richard E. Hanley, Director**  
The Brooklyn Waterfront Research Center  
New York City College of Technology / CUNY



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<sup>2</sup> Includes a table of contents.



## THE WATERFRONT

*A Brooklyn Model for Preservation and Change*

### I. EXECUTIVE SUMMARY

New York's vast and ecologically complex 520-mile waterfront<sup>3</sup> supports port-related commerce and is also used for residential and recreational purposes. In recent decades, the waterfront has transformed considerably as pressures of gentrification have converted a significant part of the undeveloped or commercial waterfront to residential use. This is particularly true in Brooklyn. Looking forward, this report presents two papers accompanied by a series of photographs to offer an economic and design perspective addressing preservation and change along the Brooklyn Waterfront. These points of view advocate for an ecologically sensitive mixed-use strategy that preserves maritime industry and allows it to co-exist with residential and recreational uses.

New York became the dominant U.S. port city in the 1800s. Its comparative advantage over rivals included access to Western markets through the Erie Canal and deep and salty water that did not easily freeze in winter. New York developed many ancillary industries related to this early port development and the flow of goods and services that came with it, including garment, chemical and pharmaceutical manufacturing.

New York's economic development was driven by a combination of chance and natural advantages. Policymakers would do well to try to maintain current advantages, anticipate trends and make strategic investments. The literature on economic competitiveness of cities suggests that progress is achieved when regions move quickly on emerging opportunities.

The Brooklyn waterfront is large and complex. It can be disaggregated into North and South Brooklyn, Coney Island and Jamaica Bay, and also includes Newtown Creek and the Gowanus Canal.

The North Brooklyn Waterfront is notable for newly transformed residential neighborhoods flanking important commercial assets, such as the Brooklyn Navy Yard. The area's proximity to Manhattan has made many of its neighborhoods prime territory for conversion to residential use. City government policy has encouraged this transformation by converting many parcels of vacant or underused commercial waterfront into parks, a welcome addition for the neighborhoods and the waterfront as a whole. The conversion of the docks along Brooklyn Heights to park facilities such as the Fulton Ferry State Park serves as an example. South Brooklyn is still evolving. Neighborhoods like Red Hook and Sunset Park have seen a revival of commercial activity, maritime trades and some recent gentrification.

The way forward is to adopt a thoughtful, creative approach to mixed-use development on the Brooklyn waterfront. Elements of this approach include a focus on green technologies for industries, the inclusion of maritime support services, such as ship repair and barge storage that is relatively easy to manage in close proximity to residential and retail uses and transition buffer zones between industrial and residential areas.

Those working in the creative industries often find the transition zones between residential neighborhoods and waterfront industries as excellent spaces to create and practice their craft. We see some of these combinations within the confines of the Brooklyn Navy Yard, where industrial production, maritime trades and a television studio exist in the same facility. Learning centers and job training sites are another programmatic use that can bridge the gap between residential and industrial usage, to the mutual benefit of both.

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<sup>3</sup> Using the latest aerial photography and GIS systems, the New York City Department of City Planning uses 520 miles as the official figure for the number of waterfront miles on New York City.

The integration of waterfront residential communities with the commercial activity affecting it makes for efficient and harmonious use of land and weakens the potential for community conflict. Proximity to an industrial core is generally seen as an asset by working class neighborhoods due to access to well-paying blue collar jobs. The waterfront is a shared resource and careful incisions of public space amenities such as parks and cultural centers on the waterfront can eliminate tensions between seemingly incompatible land uses.

While some analysts advocate the revival of port cargo facilities in Brooklyn, the infrastructure cost and externalities that would affect local residents and businesses must be carefully considered. It is, indeed, a very compelling vision and a chance for Brooklyn and New York to be major players in a new way in the global economic market. Realizing this vision would require a balance of regional aspirations with a robust infrastructure that supports local needs.

The Brooklyn waterfront presents remarkably unique opportunities. Creating reinforced connections between diverse communities and industries along its frontage through strategic programmatic and ecological considerations will form a prototype for mixed-use waterfront neighborhoods and a world-class waterfront destination.







# THE ECONOMIC IMPACTS OF THE BROOKLYN WATERFRONT

*The Future of an Urban Economy*

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## **ABSTRACT**

The future of the Brooklyn waterfront has become a fiercely contested issue as residential developers, commercial firms and recreational users all want access to water frontage. The waterfront can serve the needs of these three sectors with careful planning and the creative use of buffer zones between different kinds of usage. Furthermore, government policy can help by encouraging the development of maritime industries that can coexist with residential and recreational users.

To explore these issues, employment data and neighborhood profiles are reviewed, and the dynamics of regional business development are discussed. Recent government efforts along the Brooklyn waterfront are also presented for examination and reflection.

# CHAPTER 1 - INTRODUCTION: BROOKLYN AND NEW YORK CITY

**B**rooklyn has evolved like many older industrialized areas within and outside of New York City. To prepare for the future, it needs to continue to evaluate the deployment of its infrastructure and existing land use in an effort to understand if it is prepared to support current and future economic development. New York City in particular has components of its economic capacity that are significantly underutilized as well as regions with high levels of congestion, activity and growth. Some existing levels of activity are linked to actual competitive advantages, such as location, weather or access to labor. The state of the industrial waterfront in Brooklyn has much to teach us about the structural transformations that occur in modern urban regions.

In “Urban Colossus: Why is New York America’s Largest City?,” Edward Glaeser describes how New York City became the largest city in the United States during the colonial period, despite significantly larger ports, like Boston. New York, held by the British during the majority of the American Revolution, became the preferred shipping port for British Commerce in the Post-Revolutionary period. In addition, the salt water nature of New York Harbor (being a tidal estuary) provided a port less prone to freezing located in a friendly political climate for British merchants.

Packet ships, the grand sailing clippers of the 1840s through 1890s, were large and ran on fixed and regular routes across the Atlantic to Europe. To ensure a steady supply of customers, passengers and cargo, the packets were based out of the dominant port of New York. New York was an early center for book pirating, as well as product imitations. These questionable activities were important stimulants to New York’s publishing and manufacturing sectors.

Glaeser highlights the impact of the additional cargo commerce on the growth of raw material processing and finished goods manufacturing in New York City. The refining of raw sugar, as well as the ancillary industries of distilling, contributed in part to the growth of the chemical and pharmaceutical firms. The importation of raw cloth contributed to the growth of the garment manufacturing industry in New York. These past trends echo today in Brooklyn, which retains the highest level of manufacturing employment in New York City, as well as a significant legacy base of manufacturing sites and facilities.

Today, Brooklyn stands on the cusp of the next revolution in land use and industrial activity for both the waterfront and inland areas. The deployment of infrastructure, planning goals and public policy action and inaction will mold the future of Brooklyn’s economy. Urban planners and economists will do well to consider both Brooklyn’s past industrial history and the needs of the 21<sup>st</sup> Century economy in order to ensure a bright future for Brooklyn and New York City.

Is the Brooklyn Waterfront destined to be a home to manufacturing, port commerce and industry, or is it going to be a residential and recreational center for the region? This report considers the paths the Brooklyn Waterfront may have ahead of it and the potential benefits and consequences of the path taken. Argued here is the case that economic development of the Brooklyn waterfront should focus on maritime industry and artisan manufacturing that is suited to co-exist with residential development and recreational use.

## CHAPTER 2 - NEW YORK'S WATERFRONT AS AN ECONOMY, A SOCIETY AND A NATURAL SYSTEM

New York's waterfront is a marvel, exceeding the length of the Boston, Chicago and Baltimore coasts combined<sup>1</sup>. The physical diversity has spurred equally diverse panoplies of economic and land uses. Moss (1980) summarizes four broad types of waterfront activity that occur along New York City's coasts:

- 1) Traditional port and port-related activities;
- 2) Residential neighborhoods next to the shoreline with accompanying retail and services;
- 3) Beaches, including water-based recreation and leisure sites;
- 4) Undeveloped areas.

These categories guide the analysis here. But in the thirty years since Moss published his study, the gentrification of New York has made the waterfront prized land for residential use and has increased the demand for the recreational opportunities that access to the waterfront provides. The attention devoted to New York's waterfront has increased, as have competing visions of how it should be used.

Consider Moss' first category, port and port commerce. The Port of New York's large size, salinity and deepness, as well as its location on the Eastern seaboard and the gateway to the West through the Hudson River to the Erie Canal, quickly made it the most important port in North America. The waterfront's commercial prospects dimmed in the 1950s with the advent of containerization. The new cargo processes created bigger ships which could now load and unload with increasing efficiency at scales that were previously unimaginable and required significant amounts of landside processing acreage. Containerization decimated the once large longshoreman labor force in New York City—from 40,000 in 1954 to 3,000 in 2000. It also marked a decisive shift of port commerce to Port Elizabeth, New Jersey, a location advantaged by rail access, sufficient space for staging areas, and the decision of the Port Authority of New York and New Jersey (PANYNJ) to center port commerce at that location. 75% of longshoremen in New York and New Jersey worked in New Jersey facilities in 2000<sup>2</sup>. In comparison, only 15% of the area's longshoremen worked in New Jersey in 1950.

The significance of this history is that seemingly small differences in competitive advantage should not be taken for granted. Advantages need to be cultivated and sustained. Michael Porter's work emphasizes the importance of "first-mover advantage" in terms of business competitiveness.<sup>3</sup> Also significant, the "New Economic Geography" of Paul Krugman focuses on the role of historical "accident" in creating trade advantages. Policies that have a long-range focus to preserve the city's remaining advantages as a port city are needed, and possibly new advantages can also be created. Many existing policies focus on revenue from real estate development, for example, and may not be in the city's long-term economic interest.

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<sup>1</sup> Moss, 1980.

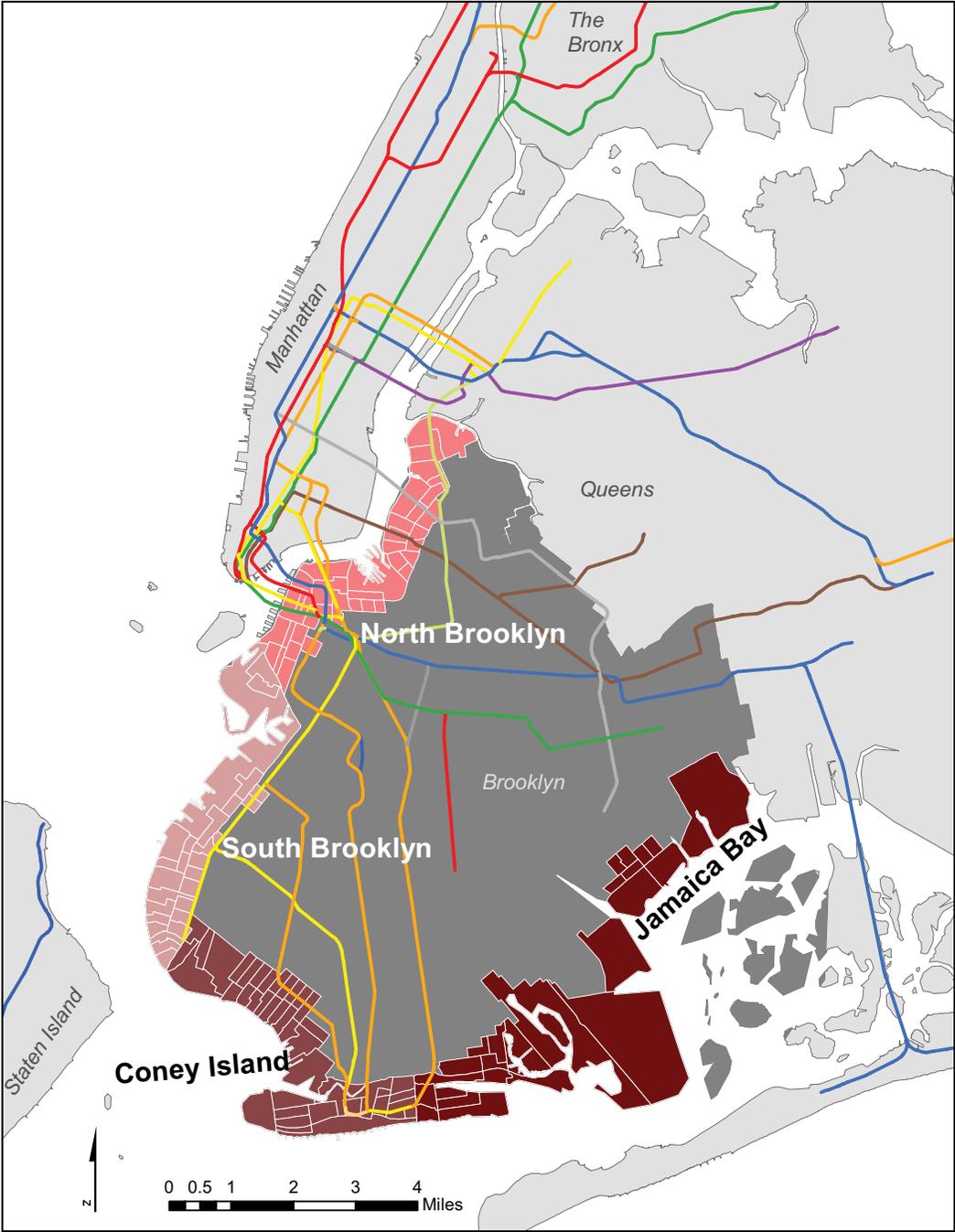
<sup>2</sup> Herold, 2004.

<sup>3</sup> Porter, 1990.

<sup>4</sup> Fujita and Krugman, 2004.

# CHAPTER 3 - DEFINING WATERFRONT BROOKLYN AS AN ECONOMIC REGION

**FIGURE 1:** Brooklyn Waterfront Census Tracts<sup>5</sup>



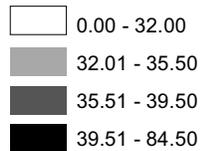
<sup>5</sup>The census tracts shown are limited to within a ½ mile of the waterfront.

## SECTION 3A - BROOKLYN'S WATERFRONT POPULATION

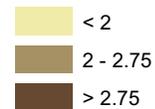
Figure 2 shows detailed 2010 population characteristic data for the five boroughs, according to median age, race, household size and density. These illustrations demonstrate that city-wide averages obscure a considerable amount of county level diversity for Kings County.

FIGURE 2: New York City Population Demographics

### Median Age



### Household Size



### Race 1 Dot = 75 People



### Population

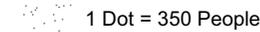


TABLE 1: Brooklyn's Waterfront Demographics

POPULATION COMPARISON BY AREA						
Area	Land Area (Sq Miles)	Population	Male	Female	Median Age	Population Density
North Brooklyn	3.8	131,025	66,154	70,294	33.0	34,654.4
South Brooklyn	3.7	78,533	39,975	41,008	38.1	21,265.0
Coney Island	4.6	140,264	67,357	75,691	41.4	30,294.9
Jamaica Bay	8.2	65,239	30,467	35,583	39.5	7,982.0
<b>Total Brooklyn Waterfront</b>	<b>20.3</b>	<b>415,061</b>	<b>203,953</b>	<b>222,576</b>	<b>38.0</b>	<b>20,469.4</b>
<b>Total Brooklyn</b>	<b>71.0</b>	<b>2,625,500</b>	<b>1,258,306</b>	<b>1,407,828</b>	<b>34.7</b>	<b>36,978.9</b>
<b>Total New York City</b>	<b>303.0</b>	<b>7,966,003</b>	<b>3,871,312</b>	<b>4,280,198</b>	<b>35.6</b>	<b>26,290.4</b>

Table 1 provides some thumbnail descriptions of some of the key Brooklyn neighborhoods along the waterfront and provides basic demographics in each one.

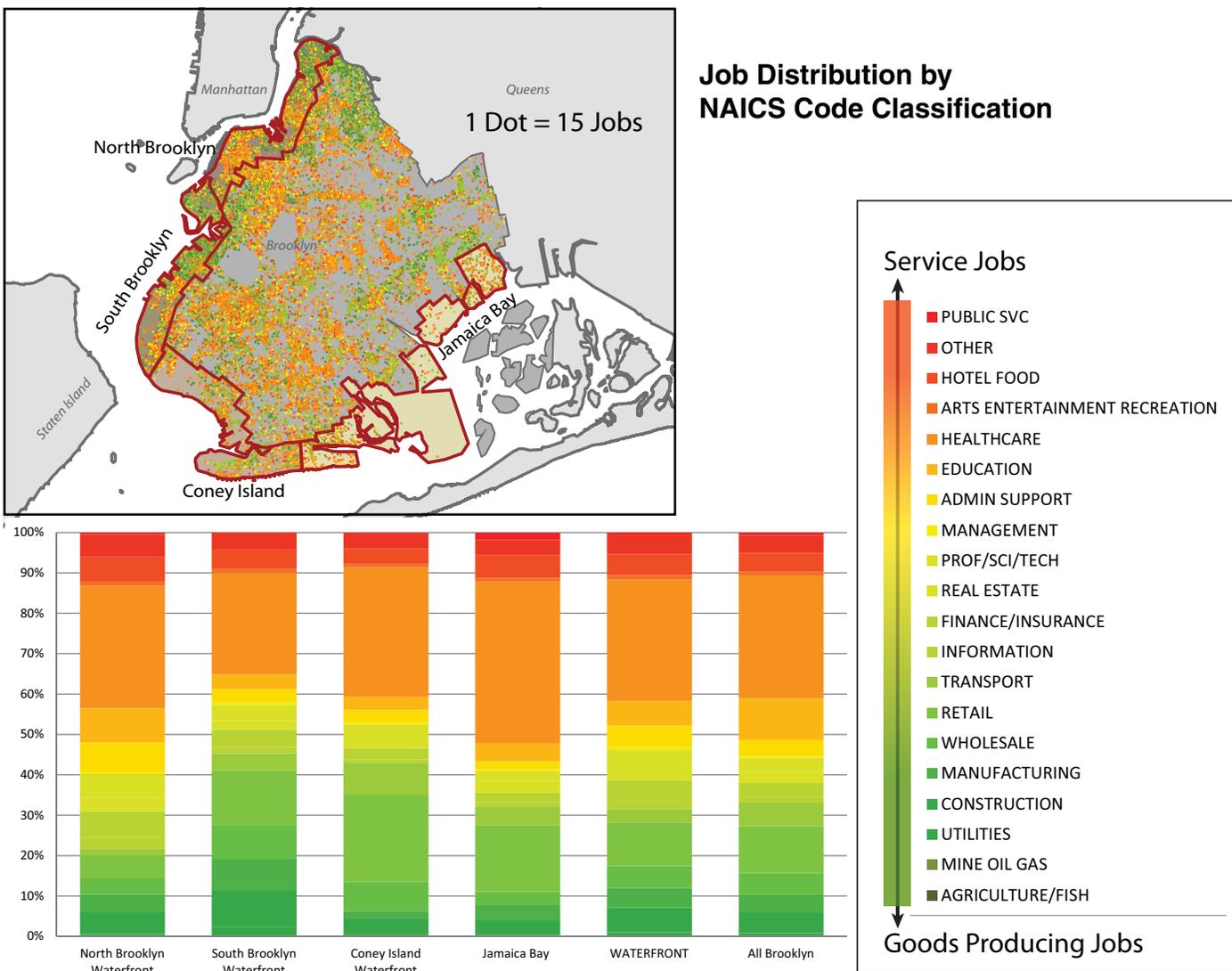
## SECTION 3B - BROOKLYN'S WATERFRONT EMPLOYMENT

The authors utilized the 2009 Longitudinal Employer-Household Dynamics data from the U.S. Census Bureau to explore the employment characteristics of Brooklyn in general and the waterfront areas in detail.

Brooklyn relies more on retail trade, health care / social assistance services and educational services to provide employment (52%) than Manhattan (20%). Interestingly, Brooklyn's health care and social service sector is the second largest by proportion of borough population in the city, behind the Bronx. However, Brooklyn's jobs are generally lower wage positions than sectors such as finance and professional sectors, areas which Manhattan dominates.

Proportionately, Brooklyn does have a much larger share of its employment coming from manufacturing (4% compared to Manhattan's 1%) and is similar to Queens and the Bronx as far as proportionate share is concerned. However, this sector has been declining over the last 50 years. Figure 3 and Table 2 provides us with an overview of the employment in the Brooklyn waterfront regions.

**FIGURE 3:** Employment and Job Base by Industry in Brooklyn



**TABLE 2: Brooklyn Waterfront Employment by Region**

<b>JOB DISTRIBUTION IN BROOKLYN BY NAICS CODE</b>							
<b>Area</b>	<b>NAICS Code</b>	<b>North Brooklyn Waterfront</b>	<b>South Brooklyn Waterfront</b>	<b>Coney Island Waterfront</b>	<b>Jamaica Bay</b>	<b>Waterfront</b>	<b>All Brooklyn</b>
Agriculture/Fish	11	0%	0%	0%	0%	0%	0%
Mine Oil Gas	21	0%	0%	0%	0%	0%	0%
Utilities	22	1%	2%	0%	0%	1%	1%
Construction	23	6%	9%	4%	4%	6%	5%
Manufacturing	31 - 33	4%	8%	2%	4%	5%	4%
Wholesale	42	4%	8%	7%	3%	5%	5%
Retail	44 - 45	6%	14%	22%	17%	11%	12%
Transport	48 - 49	2%	4%	8%	5%	3%	6%
Information	51	3%	2%	1%	1%	2%	1%
Finance/Insurance	52	7%	4%	3%	2%	5%	3%
Real Estate	53	3%	2%	3%	3%	3%	3%
Prof/Sci/Tech	54	6%	4%	3%	2%	5%	3%
Management	55	1%	1%	1%	0%	1%	1%
Admin Support	56	7%	3%	3%	2%	5%	4%
Education	61	8%	4%	3%	4%	6%	10%
Healthcare	62	30%	25%	32%	40%	30%	30%
Arts Entertainment Recreation	71	1.20%	1.00%	0.90%	0.70%	1.10%	1.00%
Hotel Food	72	6%	5%	4%	6%	5%	5%
Other	81	6%	4%	4%	4%	5%	4%
Public SVC	92	1%	0%	0%	2%	0%	1%
Total	All	100%	100%	100%	100%	100%	100%
<b>Total Jobs</b>		<b>64,173</b>	<b>32,031</b>	<b>16,254</b>	<b>10,305</b>	<b>122,763</b>	<b>449,961</b>

The “heat map” in Figure 4 targets Brooklyn employment. Here one can see employment density (i.e. concentrations of jobs) following two main features – transport corridors (road and transit) and geographic features. The patterns are not completely consistent, especially for geographic features, but they do show that physical topography does still have some influence on Brooklyn’s economy. In addition, the heat map clearly shows that the most important local job centers are along the northern and eastern coastline of Brooklyn and as such, the discussion of the economic future of the waterfront is of significant concern.

**FIGURES 4:** Employment Heat Map

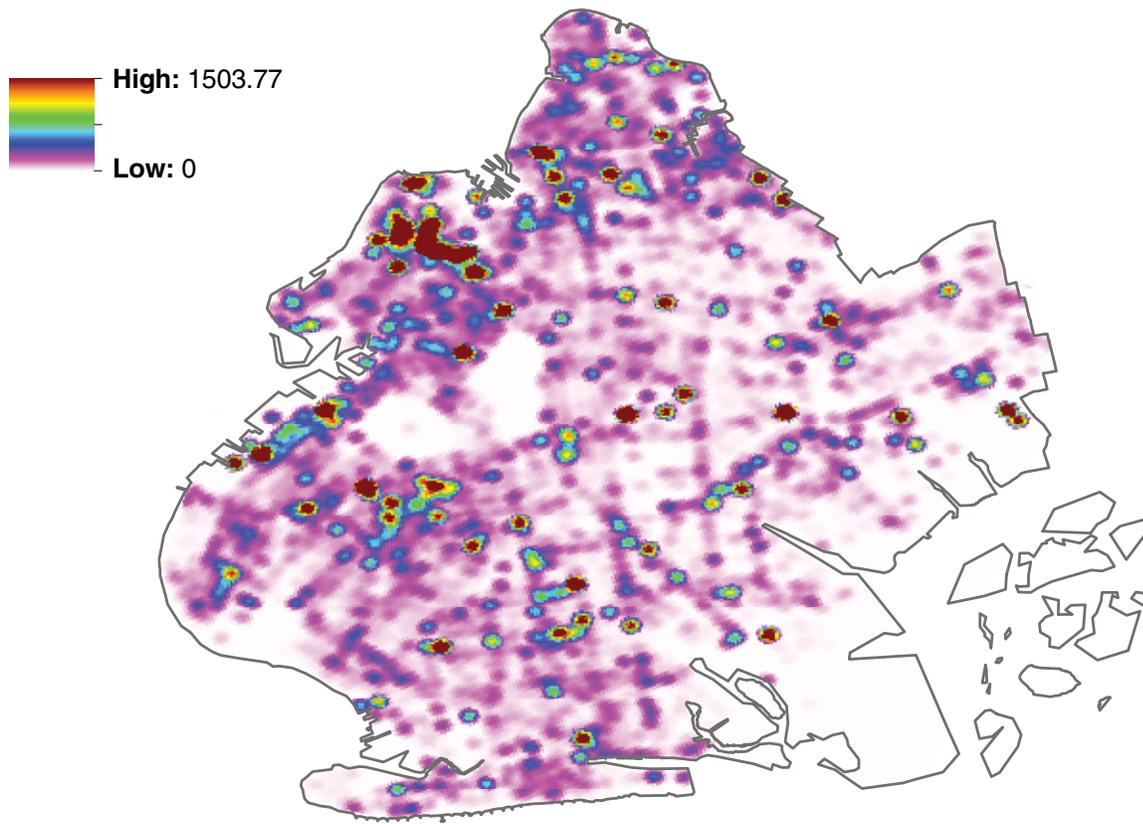
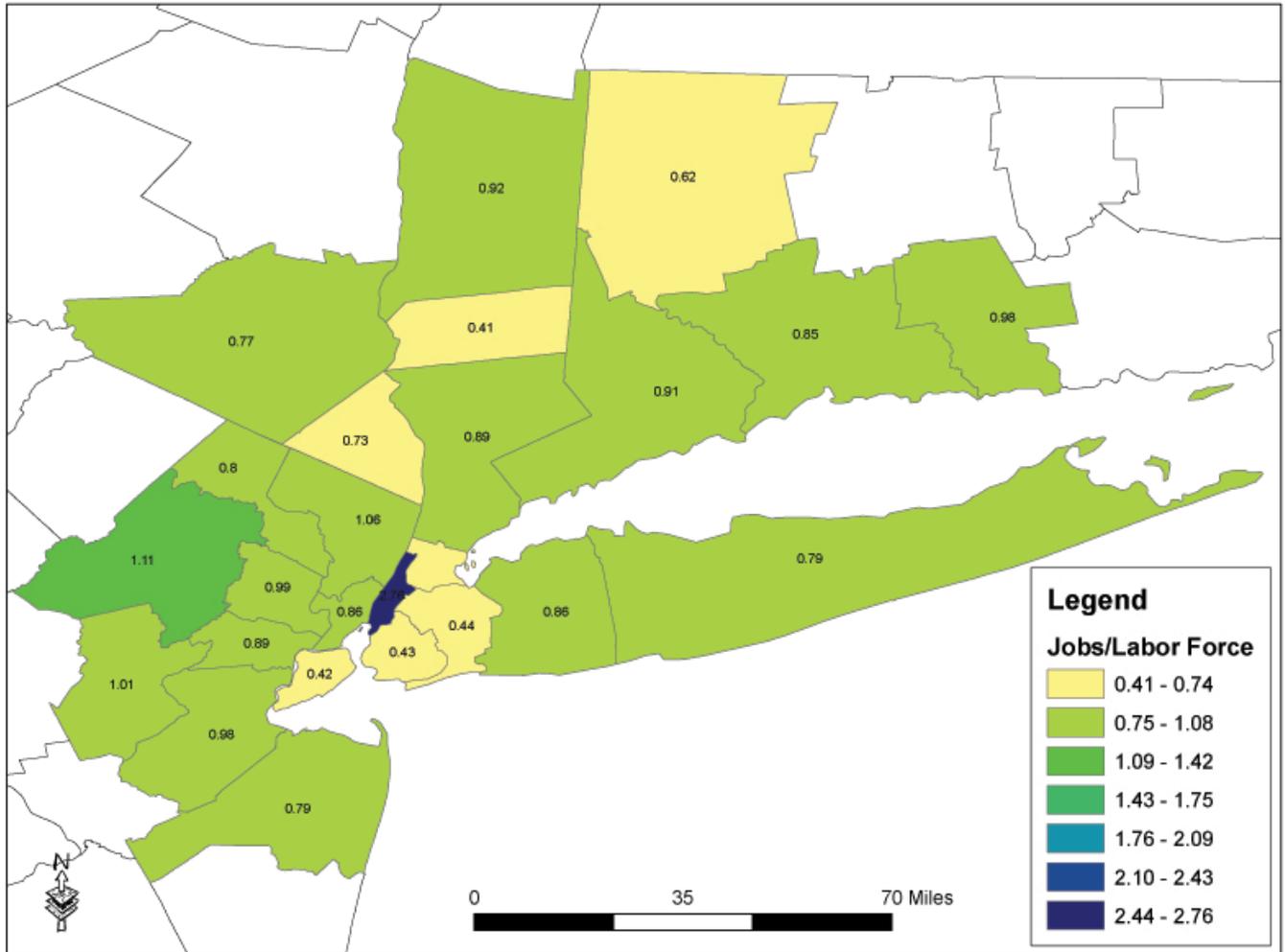


Figure 5 shows the ratio of employment to labor force in 2000 for the counties that make up metropolitan New York Region. As one can clearly observe, all of the outer boroughs have employment shares at substantially less than 100%. Brooklyn has a 40% share. Thus, Brooklynites, like most city dwellers outside Manhattan, have to commute out of their county to find employment. In general, the outer boroughs are severely short of local jobs. This has implications involving the need for additional transportation services and the impact of the city's carbon footprint.

**FIGURE 5:** Year 2000 Ratio of County Jobs to County Labor Force



The creation and preservation of jobs in the borough of Brooklyn should be a significant matter of concern for regional planners, thus our discussion will proceed with this as an underlying assumption.

## CHAPTER 4 - MORE THAN ONE BROOKLYN WATERFRONT ECONOMY

The waterfront region can be broken into four unique regions based upon land use patterns and traditional regional identity: North Brooklyn, South Brooklyn, Coney Island, and Jamaica Bay. In describing each sub-region, the four-fold waterfront use template discussed previously (port commerce, residential and business activity, beaches and recreation, and unused waterfront) is again employed.

### SECTION 4A - THE NORTH BROOKLYN WATERFRONT

The northern border of the borough is defined for three miles by Newtown Creek, with significant waterfront and industrial assets along this maritime channel. Heading south to Atlantic Basin, this region has a long history of maritime trade and industry including the massive former Brooklyn Navy Yard, as well as significant transportation and residential relationships to the Manhattan employment base.

The northern sector is dominated by three key sub-regions and economic zones – Williamsburg & Greenpoint; the Brooklyn Navy Yard; and Downtown Brooklyn. Williamsburg & Greenpoint, on the far north coast of Brooklyn, developed significant manufacturing, ship building and warehouse zones in the mid to late 19<sup>th</sup> century. With the gentrification of Manhattan’s more distressed neighborhoods like the East Village, Soho and Tribeca in the 1980s and 1990s, urban pioneers in the arts and cultural communities moved into the Dumbo area and then Williamsburg and recently migrated into more isolated Greenpoint and Bushwick. Initiatives are underway to increase public access to the waterfront in Greenpoint and Williamsburg through the development of a waterfront esplanade and open space.

This area has experienced a real residential boom, offering the opportunity for larger lofts and apartments at more reasonable rental rates. Thus, the population has grown dramatically since the 2000 Census. Though the greater city has grown by just over 2% according to the Census Bureau since 2000, the population of Brooklyn Community Board 1 (which includes all of Greenpoint, Williamsburg, and parts of Bushwick) has nearly quadrupled the city growth rate in that same time period. Further development will involve the conversion of existing manufacturing properties to housing. The question that needs to be considered is whether or not the conversion of manufacturing space to residential use is sensible or appropriate for the long-term economic competitiveness of the region. The effort needed to retain existing industry may be significantly less in terms of planning and monetary costs than the process of attracting new manufacturing and industry from other areas.

The communities of Downtown Brooklyn, Brooklyn Heights, Cobble Hill and Carroll Gardens complete the northern section of the Brooklyn Waterfront. With a strong complement of historic homes and districts in these communities, they seem destined to retain much of their current architectural fabric and as such, we expect that the current land usage and industrial patterns will continue into the future. The small patches of obsolete industrial lots are being converted to parks or housing.

A significant change in the waterfront areas of these residential neighborhoods has been the conversion of vacant sites to parkland. The creation of the Fulton Ferry State Park and the transfer of Piers 1 to 6 in Brooklyn Heights to the Brooklyn Bridge Park in 2006 sealed the future of the southern region to Red Hook. Waterfront with residential, recreational and open space features are the primary uses for this section.

In some cases, there is industrial space that is in poor condition or has no current use. The opportunity to create “fringe” zones around these areas abound. Fringe zones will have “harder” uses than purely residential and will serve as a buffer on the heavy industrial areas beyond. Creative arts and industry involving welding, painting, casting and industrial tools are appropriate, for example. The potential to integrate and preserve manufacturing zones and maritime uses while creating more livable boundaries is an attractive option. In fact, the maritime and creative firms may use some of the same manufacturing and technology systems and could potentially co-locate their facilities.

## SECTION 4B - THE SOUTH BROOKLYN WATERFRONT

South Brooklyn, in our definition, stretches from Red Hook down to the Narrows. Starting at the north end of the district, Red Hook was a lively maritime neighborhood where longshoremen earned their living in break-bulk shipping, but a decline began in the 1950s. Containerization began, and regional resources and infrastructure to manage shipping practices shifted to Port Elizabeth. The construction of the Brooklyn-Queens Expressway and the Red Hook Houses, a public housing development, created a physical and psychological barrier from the rest of Brooklyn and the city. In the 1980s and 1990s, Red Hook attracted national attention as one of the most dangerous and isolated urban neighborhoods in the nation, a textbook case of the problems that arise from the hyper-segregation of the poor. The murder of assistant principal Patrick Daly in 1992 might very well have been Red Hook's most demoralizing moment<sup>7</sup>.

The neighborhood began a period of renewal in the late 1990s. In a report prepared for the Red Hook/Gowanus Chamber of Commerce in 2002, the Center for an Urban Future noted the increase in the number of businesses in the area. Also noted were signs of life in the maritime sector, which was virtually dormant in the 1980s. The Center report noted that the access to the harbor, Manhattan and roadways was strategically important, particularly to provide good jobs for unskilled laborers in the waterfront neighborhoods<sup>8</sup>. However, the lack of space and facilities in the area was an obstacle to growth.

An IKEA furniture store opened in Red Hook in June 2008 on the site of an operating maritime facility with one of the few graving docks in the metropolitan region. IKEA liked the site because of its proximity to Manhattan and the Brooklyn-Queens Expressway, regardless of the resurgence of local maritime commerce. IKEA organized an effective lobbying campaign to move forward with the project. They connected with local community groups in Red Hook, promising that residents in the local zip code would have first consideration for some of the estimated 600 new jobs that the store would bring. IKEA also worked to get the endorsement of the civic associations associated with Red Hook Houses and the local city councilwoman.

Opponents of the IKEA failed to prove that preservation of the historic site was an important part of the New York's future<sup>9</sup>. With the publication of a New York City Economic Development Corporation (NYCEDC) report, the issue came to light that the city has a deficit of operational graving docks and lacks almost half the docks it needs to service ships<sup>10</sup>.

## SECTION 4C - THE OTHER SHORES

The Coney Island region comprises a diverse mix of residential, small commercial establishments and recreational facilities that are, in many cases, historic in nature. The Jamaica Bay section of the Brooklyn coastline shares common elements with the Borough of Queens, and the area is dominated by the Gateway National Recreation Area. This region's waterfront has generally been used for recreational maritime activities. Strong maritime oriented residential communities are nearby, such as Bergen Beach, Mill Basin, Broad Channel, Howard Beach and The Rockaways.

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<sup>7</sup> Massey and Denton, 1993; Sexton, 1993.

<sup>2</sup> Bowles, 2002.

<sup>3</sup> Cardwell, 2005; Pogrebin, 2007.

<sup>4</sup> Yahalom, S, Johansson, E, et al., 2007.

# CHAPTER 5 - BUSINESS COMPETITIVENESS AND REGIONAL ATTRACTIVENESS

**B**rooklyn presents the region with unique assets, such as the graving docks, that are essentially monopolistic assets. That is, they are irreplaceable in the regional economy, and therefore their competitive position is assured if they are preserved. Brooklyn also has competitive disadvantages. These include the local tax structure, which tends to be heavy towards businesses, as well as the regional road congestion and its road fee structure.

From a business perspective, commercial firms generally need a number of goods and services from a particular region to locate or grow in that region. These include the ability to:

- 1) Get inputs to production
- 2) Attract workers
- 3) Reach shipping points
- 4) Get critical services

All of these needs are supported by various parts of the transportation network, as well the capacity and infrastructure of the general regional economy.

Eberts et al. (2006) presents an attempt to develop a full set of regional competitiveness indicators for the Northeast Ohio economy. They formulated a conceptual set of performance themes that will indicate the attractiveness of a given community to business and economic activity.

The initial themes were:

- 1) Economic Growth and Employment
- 2) Education and Workforce
- 3) Quality of Life and Place
- 4) Equity and Fairness
- 5) Cooperation and Governance

From this, the team identified 40 economic and social variables that they felt represented the initial themes. Key to inclusion on this list is the regular reporting of these variables by reputable agencies with a minimal of lag in reporting. The statistical technique, factor analysis, is used to condense initial metrics into 8 core performance factors. Using the technique, factor loading analysis, and specifically the varimax rotation method, the authors are able to identify the relationship between the variables and the performance factors.

The performance factors identified were:

<b>Factor</b>	<b>Common Description</b>
1) Skilled Workforce	“skilled workers”
2) Urban Assimilation	“minority business and home ownership”
3) Racial Inclusion	“diversity of city”
4) Legacy of Place	“old city and infrastructure”
5) Income Equality	“fairness of income distribution”
6) Locational Amenities	“nice place and climate”
7) Business Dynamics	“high activity in small businesses”
8) Urban/Metro Structure	“core city poverty, government fragmentation”

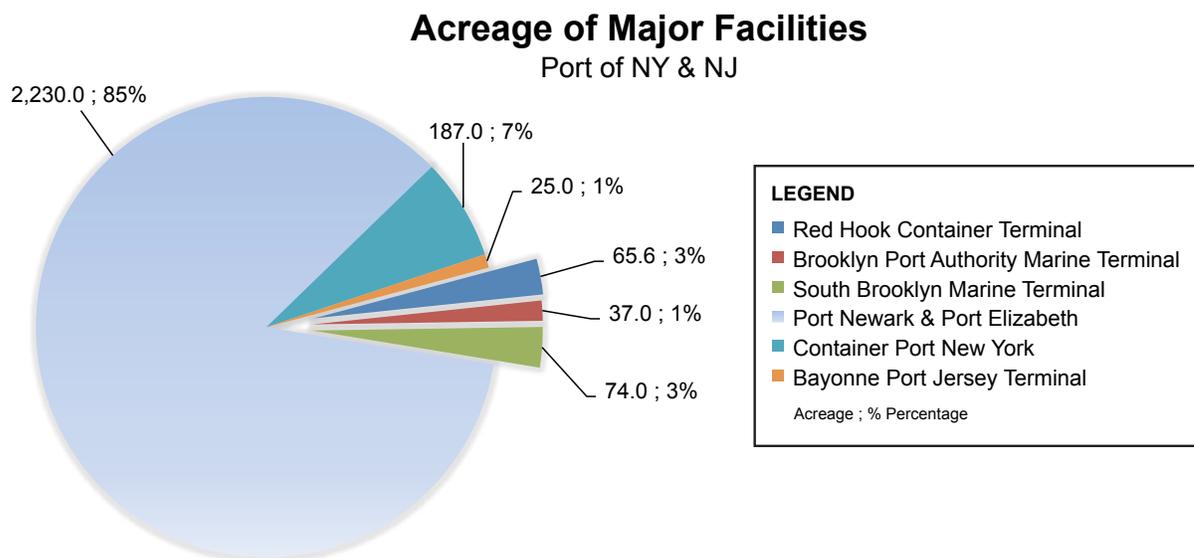
Using the factors identified by Eberts et al., we see that Brooklyn has a high likelihood of being competitive in terms of the “livability” aspects of a region, but the borough is weak in terms of many of the “Legacy of Place,” “Business Dynamics” and “Urban/Metro Structure” aspects.

From a transportation perspective, Brooklyn lacks any significant linkages to the national freight network, with the nearest Hudson River rail crossing located in Selkirk, New York near Albany. The proximity to the major consumer markets in Manhattan and Long Island may be offset by the cost of serving other parts of the region. For example, the warehousing industry has largely moved from New York to the surrounding counties in New Jersey and Pennsylvania. It makes sense for firms to locate warehousing or freight operations outside of the toll corridors and only move freight that is consumed inside the region through the toll process. This benefits the port and warehouse facilities located west of the Hudson River at the expense of jobs and activity east of that waterway.

Unfortunately, the port facilities in Brooklyn are not designed to handle large container ships. This is despite the advantages the borough has, namely the lack of low bridges blocking access and a close proximity to deep water in the Upper Bay. These ships typically have 5,000 -10,000 twenty foot equivalent units (TEU's) in the form of 2,500 to 5,000 40 foot container boxes, that are unloaded and offloaded in roughly 12 to 24 hours in a port visit<sup>11</sup>. Ro-ro (roll on – roll off cargo) operations have similar loading times and need significant upland storage for vehicles (cars, buses, trucks, etc.) loading and offloading from the ships. The modern super ships will have 14,500+ TEU's. Overall, the Port of New York and New Jersey handled 5,299,000 TEU's in 2007 (peak year) and 4,561,528 TEU's in 2009<sup>12</sup>. Table 3 provides a listing of the cargo facilities in the Port of New York and New Jersey and the scale of each in terms of acres and the percentage of upland cargo area for each.

**TABLE 3:** Scale of Port Facilities

PORT OF NEW YORK & NEW JERSEY: MAJOR CARGO FACILITIES		
Facility Name	Area	Percent
Red Hook Container Terminal	65.6	2.5%
Brooklyn Port Authority Marine Terminal	37.0	1.4%
South Brooklyn Marine Terminal	74.0	2.8%
All Brooklyn Terminals	176.6	6.7%
Port Newark & Port Elizabeth	2,230.0	85.2%
Container Port New York	187.0	7.1%
Bayonne Port Jersey Terminal	25.0	1.0%
<b>Total NY &amp; NJ Port Facility Areas</b>	<b>2,618.6</b>	<b>100%</b>



<sup>11</sup>The American Association of Port Authorities.

<sup>12</sup>The American Association of Port Authorities

## CHAPTER 6 - MACROECONOMIC MULTIPLIERS

The theory of economic multipliers, borrowed from macroeconomics, provides us with a basis for assessing the impact of infrastructure (or other expenditures) on the regional economy. Papers by Miller (2006), The Bureau of Economic Analysis (1997) and Rosenthal & Strange (2005) provide a basic review of how macro multiplier analysis can provide us with a good estimate of the impact of any particular economic program.

From the point of view of the regional economy, any investment in infrastructure has two economic benefits – first a direct benefit caused by the investment multiplier effect from constructing the project. For residential investment, this may be the primary impact. Residential development relies on other commercial activity for the employment base that supports the real estate investment. Secondly, there is the long-term impact of the project on regional competitiveness. Port facilities, by providing improved transportation flows and accessibility, will attract regional business due to lower costs.

Project construction provides direct stimulation to the economy. For example, in Boston, the “Big Dig” provided about \$14.6 Billion in direct costs due to the construction of the project. We might assume a factor of around three in terms of a multiplier effect, meaning it provides around \$45 Billion in total regional economic activity. These impacts, however, are not realized without other costs, such as the environmental impact and traffic delays caused by the construction.

The secondary impact is harder to quantify, as it is a derived impact of improved infrastructure services. This may best be reflected in lower economic costs, since cost savings would flow through to increased employment and wages. Quantification of these impacts are delicate and time consuming; however, they can be estimated. The New York Shipping Association estimated the economic impact of the NY/NJ port at 164,931 direct jobs and 269,989 jobs in total with a total business income of \$36.057 Billion in 2008.

## CHAPTER 7 - A BETTER ALTERNATIVE: MARITIME SUPPORT INDUSTRIES

**M**aritime commerce employs a number of specialized industries including:

- navigation services
- ship supplies
- fuel
- maritime tow services
- barge and scows
- dredging and canal maintenance
- shipyard services which include the repair and maintenance of ships and cargo barges

These industries generally have a significant waterfront land use component in addition to a number of ancillary industries related to port activities including trucking, warehousing and freight processing, all of which are necessary in the region.

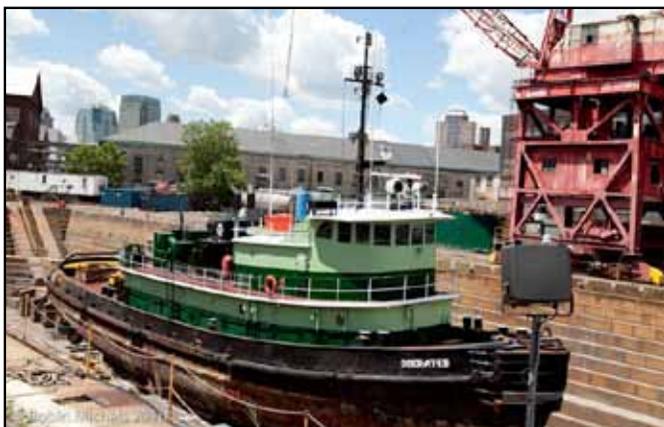
Shipyards utilize two key technologies for large vessel repair. The first is the floating dry dock, a floating pontoon that can be filled with water and submerged. This allows a ship to float on top and then be lifted out of the water for preventative maintenance, ship renovation or damage repair. Fourteen active floating dry docks exist in the New York Harbor (NY & NJ).

The second technology is the graving dock. A graving dock is basically a hole in the ground, much like a ship lock. There is a movable door on one end that can be plugged with the door and then pumped out. There are four active and six inactive graving docks in New York Harbor area.

Based upon research by Yahalom et al. (2007), the New York Harbor is currently in need of at least an additional 7 dry docks or graving docks in the region. The current local vessel fleet will need 1,239 dry dock calls over a 5 year period. This equates to a net five-year short fall of 426 calls.

Brooklyn is home to the greatest concentration of graving docks. There are three active and six total in the borough. Each was built in the late 1800s for large capacity ship building and maintenance. Also of interest, each has a ship length capacity greater than any local floating dry dock and has more linear footage of dry dock capacity than any other county in the metro region. The preservation or replacement of this capacity is key to the competitiveness of the regional maritime industries. The Brooklyn graving docks are located at the Brooklyn Navy Yard and are currently operated by GMD Shipyard under lease from the navy yard.

**FIGURE 6:** Photograph of a Brooklyn Graving Dock



**FIGURE 7:** Photograph of a Floating Dry Dock



Given current environmental issues, as well as significant permitting and construction costs and an undefined time horizon for all approvals, the existing graving facilities in particular should be considered unique and irreplaceable in the foreseeable future. Functioning as a barrier to entry, the limited ability to create alternative sites for ship repair in the region creates a more stable and protected industry than for many other industrial activities. In addition, there exists the potential to expand the supply of maritime support industries, including additional floating dry docks in the Sunset Park area of the waterfront.

If shipyard services are unavailable in the region, a tremendous amount of economic cost will be incurred. The largest component would be the time value of loss of services of a particular vessel, due to travel time to and from the remote shipyard. Yahalom et al. estimates that moving a vessel out of port for maintenance costs \$6,141 in moving costs and \$16,000 to \$30,000 in lost revenue due to the additional days out of service for the vessel. This also causes a loss of economic activity and jobs from the region. For example, in 2009, the \$71.5 million, five-year contract for maintenance of the Staten Island Ferry was won by a firm in Norfolk, Virginia<sup>13</sup>. With a multiplier effect of roughly 2.5, this represents the loss of \$180 million in economic activity from our region. GMD Shipyards at the Brooklyn Navy Yard bid only 1.35% higher than the winning low bidder<sup>14</sup>. This situation highlights the need for regional industries to be truly nationally competitive, since the market for their services may be national and international in scope.

The key regional player in this matter, the PANYNJ publicizes many of its projects on the organization's web site. As the next generation of super ships arrives, it is critical that the Port of New York is prepared for their arrival. Case in point, the PANYNJ is raising the Bayonne Bridge by 215 feet. This will enable larger ships to reach the marine terminals west of the bridge.

Is it necessary, in supporting the working waterfront where it exists now, to sacrifice urban amenities that residents and non-maritime waterfront businesses like? Supporting port commerce leads to vitality in a periphery of support industries, such as machining, manufacturing, welding, steel and aluminum fabrication and specialty coating firm. All are necessary to support the maritime trades. But these trades need no longer be the dirty, polluting, unattractive enterprises they once might have been. The Port Authority is exploring the concept of developing a regional center for maritime support services. This center would be modeled after the RDM Campus in Rotterdam, the Netherlands. The campus improved on conditions that were similar to what New York City now has: older port facilities, where the port is both working in its traditional way and is also a thriving municipal space.

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<sup>13</sup> Due to the use of 50% federal funding for the maintenance contract, national bidding was required.

<sup>14</sup> "Staten Island Ferries to sail south for servicing," Staten Island Advance, January 17, 2009.

## CHAPTER 8 - BROOKLYN WATERFRONT'S INSTITUTIONS AND GOVERNANCE

Looking back, a 1969 plan issued by the City Planning Commission under Mayor Lindsay referred to the waterfront as “the city’s most extensive underdeveloped and promising natural resource... at a time when cities everywhere are running out of land and breathing space.” The New York State Urban Development Corporation issued a 1971 report that noted that “increasingly agencies and builders are looking to the waterfront to provide development opportunities which do not involve the heavy social costs of relocation and the delays and costs incurred in acquiring and demolishing existing buildings<sup>15</sup>.”

What is striking about these reports is their focus on real estate development. Port commerce is not mentioned at all. This is partially because, until 1970, New York State law limited the management of City-owned waterfronts and waterways to the aiding of “navigation and commerce.” In that year, the statute was expanded to allow New York municipalities to manage their publicly owned waterfront “for any business, commercial, maritime or public purpose<sup>16</sup>.”

More recently, New York City lost 46% of its manufacturing jobs between 2002 and 2008. 15,000 of those positions were in Brooklyn alone<sup>17</sup>. Partly in response to this decline, and criticism that City Hall was rezoning industrial land for residential use with excessive vigor, the Bloomberg administration restructured the city in 2005 to better aid the sector. Sixteen Industrial Business Zones (IBZ) were established, as well as the Mayor’s Office of Industrial and Manufacturing Businesses. Zones exist along the Brooklyn waterfront and in other parts of the city as well.

The Brooklyn Waterfront IBZs include Southwest Brooklyn (Sunset Park and Red Hook), the Brooklyn Navy Yard and Greenpoint/Williamsburg. Each zone has a nonprofit economic development partner to help businesses, as well as to provide some guidance regarding the tangle of state and city regulations and incentives in the particular zone. Many of these zones overlap the state’s Empire Zones. The Bloomberg administration has committed to not rezoning the IBZ areas from industrial to residential use. Firms which relocate to an IBZ get a \$1000 tax credit per employee against City taxes. Blocks adjacent to the industrial zone are “Ombudsman Areas” where mixed use is allowed. The administration extends the same support services to these areas, but offers no guarantees about maintaining zoning and offers no tax breaks.

The Office of Industrial and Manufacturing Businesses provides interagency coordination among core City departments, including the NYCEDC, the Department of Small Business Services and the Department of City Planning. This office provides industrial and manufacturing concerns with one-stop access to the City government<sup>18</sup>. These efforts have been criticized by some for being insufficient, however. Since the administration’s pledge to save industrial zones has not been codified to local or state law, a future mayor, or even the current administration, can change it.

The publication of the Vision 2020: New York City Comprehensive Plan in March 2011 is a lengthy report, part of which addresses the topic of industrial development along the waterfront. The plan also calls for improvements in public access, recreational amenities and the development of spectacular residential communities. Notably, \$350 million or 11% of the capital funds for the projects in the plan will be used to acquire parcels to build parks<sup>19</sup>.

A next step could be to integrate elements of maritime industries and industrial development with the residential and recreational areas. Without this, New York will miss out on opportunities to strengthen and diversify its economy, and many blue collar New Yorkers may at some point join the ranks of the unemployed.

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<sup>15</sup> Moss, 1980.

<sup>16</sup> Moss, 1980.

<sup>17</sup> Office of U.S. Senator Kristin Gillibrand.

<sup>18</sup> Mayor’s Office of Industrial and Manufacturing Businesses, Office of the Mayor, New York City, 2005.

<sup>19</sup> NYC Department of City Planning, 2011. Note: Most of the funding will be used to improve water quality.

# RECOMMENDATIONS

The great period of American deindustrialization from the 1950s to the 1980s sapped the Brooklyn Waterfront of its vitality. The waterfront, however, has become a popular commodity in recent years, and one that must be managed wisely, with the delicate balancing of port commerce, residential housing and waterfront recreation. The waterfront should not be the exclusive domain of any single group of users or firms. The government should incentivize the development of ancillary port activity that supports the great cargo facilities at Port Elizabeth and Port Newark. Light industrial areas between residential and industrial zones should be encouraged. Most importantly, infrastructure assets on the borough's waterfront should not be sacrificed to meet the cyclical demand for housing or retail that can be better accommodated in other parts of the city.

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## **PHOTOGRAPHS TO CONSIDER**

*New and Familiar Brooklyn Perspectives*

## HISTORICAL LEGACY

Daniel Richards originally built the Atlantic Basin in the 1840s from what had been Cornell's Mill Pond. It could hold up to 100 ships with much of the traffic coming from the Erie Canal. Now, the same location hosts Brooklyn's one container port, the Red Hook Container Port, which has the capacity for small container vessels. Coney Island Creek, on the other hand, never was developed for serious maritime use. Abandoned boats are left untouched in the creek, since moving them would stir up pollution.



*Photographer: Robin Michals*

Red Hook Container Port,  
2010



Coney Island Creek, 2010

*Photographer: Robin Michals*

## FUEL AND SHELTER

Illuminants and fuel, from whale oil and kerosene to biodiesel, have a long history on the Newtown Creek, one of Brooklyn's four Significant Maritime Industrial Areas (SMIAs.) Other former industrial areas are undergoing major residential development. Census data shows the population in parts of Williamsburg more than doubling in the last decade.



Shell Oil, Newtown Creek,  
2010

*Photographer: Robin Michals*



*Photographer: Robin Michals*

The Edge, Williamsburg,  
2010

## IMPROVING WATER QUALITY

In May 2011, the NYC Department of Environmental Protection completed the Paerdegat Basin Combined Sewer Overflow Facility. It will prevent up to 1.2 billion gallons of untreated water from flowing into Jamaica Bay each year. The water is held in underground tanks until it can be treated at the Coney Island Wastewater Treatment Plant. In addition to increasing capacity for treatment, in 2010, the city released a Green Infrastructure Plan to improve water quality by reducing runoff water.



Photographer: Robin Michals

Coney Island Wastewater Treatment Plant, as seen from Gerritsen Beach, 2011



Lake Sebago Canoe Club, Paerdegat Basin, Canarsie, 2011

Photographer: Robin Michals





# IV.

## LESSONS FOR AN URBAN WATERFRONT NEIGHBORHOOD

*A Planning and Urban Design Perspective*

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## **ABSTRACT**

The Brooklyn waterfront is undergoing a rapid transformation and it is an opportune time, while we are in an economic downturn, to plan strategically and creatively for its future. Urban design issues that are integral to planning a resilient urban waterfront are presented, with an emphasis on the balance of programmatic uses and the importance of taking an ecologically sensitive approach.

Through this discussion, Sunset Park is presented as a waterfront neighborhood case study. As the wave of development trends start to move towards South Brooklyn, Sunset Park as one of New York's last remaining working waterfronts, is on the cusp of significant change. Distinctive for its palpable juxtaposition of industrial, residential and commercial, the neighborhood is grappling with perceived conflicting land uses, the future role of the maritime industry, equitable public access and environmental remediation. Addressing these issues, recommendations will be made for Sunset Park and other urban waterfront neighborhoods that are also dealing with themes of preservation and change.

# CHAPTER 1 - INTRODUCTION: BROOKLYN, A WATERFRONT CITY

“Today, cities are rediscovering the value of their rivers and lakes. In the mid-19th century, when railroads rendered water transportation less dominant, cities made the big mistake of literally turning their backs on the water that spawned them. Waterfront streets were abandoned. Buildings that once faced the river were converted to face away. Urban waterways were forgotten.”

- **John Norquist**, *The Wealth of Cities: Revitalizing the Centers of American Life*<sup>1</sup>

**A**round the world, waterfronts are undergoing major changes as cities everywhere are reclaiming their water's edge and transforming it into vibrant public destinations. With 520 miles of diverse shoreline bordering an ocean, a river, inlets and a bay, New York City has an incredible opportunity to embrace its waterfront and invest in its transformation. Mayor Michael Bloomberg and other City officials refer to the water as the connective tissue between our boroughs and, in effect, the sixth borough. Understanding this importance, the waterfront is being redefined by new parks, industrial activities and housing for its citizens through both public and private initiatives, and the City is promoting waterborne transportation, recreation and natural habitats along its edge<sup>2</sup>.

Echoing the renewed commitment to the waterfront, Brooklyn has seen tremendous change over the past decade as zoning and land use patterns have shifted and real estate pressures have steadily increased. “Walking around New York, I see people, streets, neighborhoods and public spaces being upscaled, redeveloped and homogenized to the point of losing their distinctive identity,” remarked Sharon Zukin<sup>3</sup>. Urban growth is a natural phenomenon, but there is a need to balance the onslaught of new upscale developments with the preservation of some of the existing fabric. A special focus is recommended to balance a mix of uses that support Brooklyn's endangered industrial heritage.

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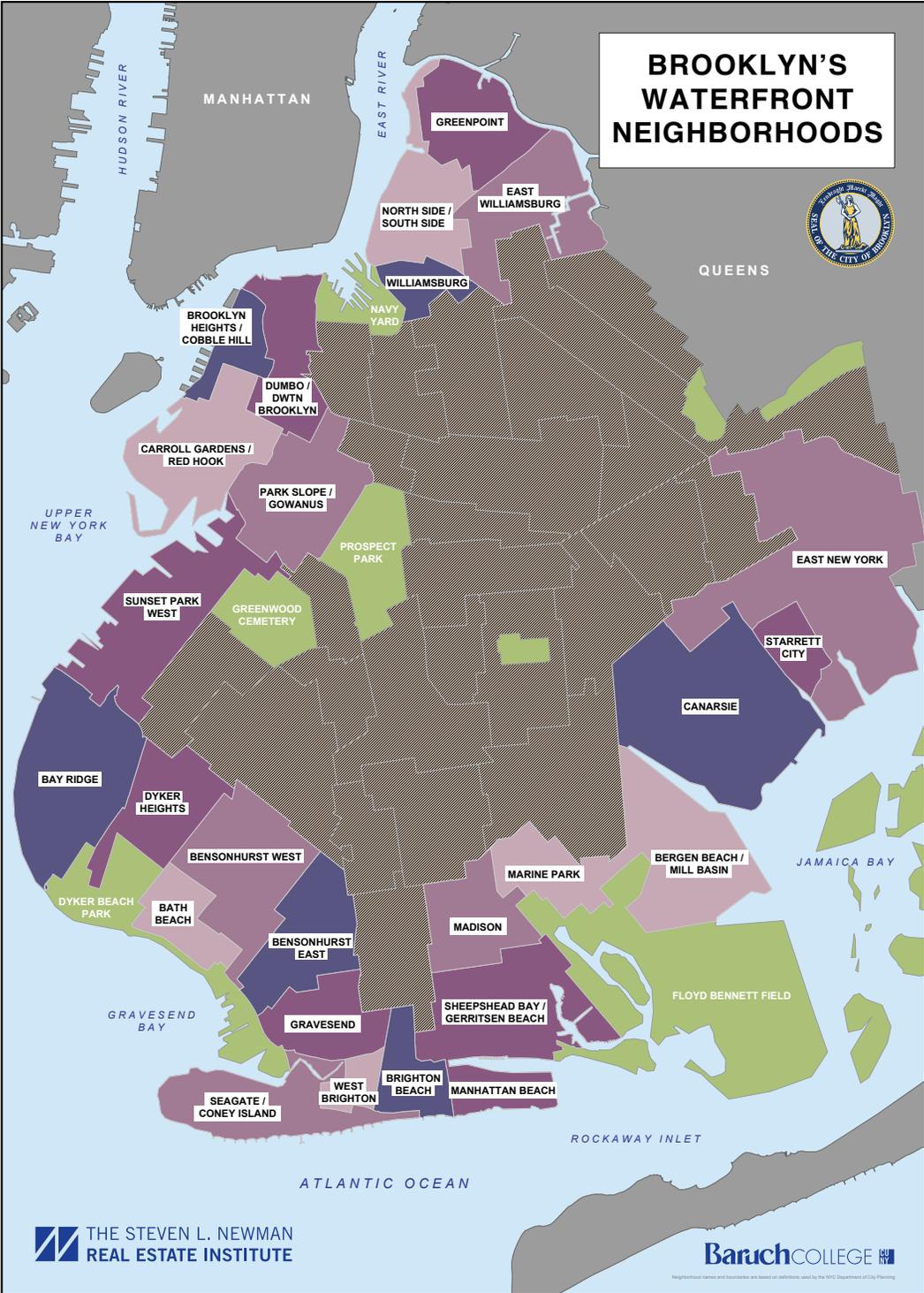
<sup>1</sup>Norquist, 1998.

<sup>2</sup>In New York, a citywide, multi-agency initiative called the Waterfront Vision and Enhancement Strategy (WAVE) was launched in 2008, and focuses on creating a new sustainable blueprint for the shoreline. This initiative has two parts. First, “Vision 2020,” a plan of the New York City Department of Planning, establishes eight broad goals and parallel recommendations for the waterfront and the waterway to take place over the next decade and beyond. The second part is the New York Waterfront Action Agenda, a series of projects that will be initiated in the next three years and have been chosen for their ability to catalyze investment in waterfront enhancement.

<sup>3</sup>Zukin, 2010.

Figure 1 shows a map of Brooklyn highlighting its waterfront neighborhoods.

**FIGURE 1:** Brooklyn's waterfront neighborhoods



## CHAPTER 2 - KEY PLANNING ISSUES

The Brooklyn waterfront is poised to mature into a dynamic location for both residents and visitors. Planning a holistic vision for its future requires the careful consideration of two key urban design aspects: access and program. What people do at the waterside (program) determines who goes there and how they get there (access). A third consideration to be accounted for by planners is sustainability. This includes taking into account the changes to the waterfront that might occur as the result of the sea level rise due to storm surges and climate change.

### SECTION 2A - ACCESS TO AND ALONG THE WATERFRONT

Waterfronts thrive when they can be accessed by multiple means of transportation, which include boats, bike and pedestrian ways, and shuttle buses that connect to major transit links and public transport. Major streets that provide direct access from upland neighborhoods to the waterfront need to have an enhanced streetscape with signage to foster easy pedestrian and vehicular movement. NY Waterway's East River Ferry, shown in Figure 2, has been very successful in connecting Brooklyn to various destinations in Manhattan, Queens and Governor's Island and encouraging residential and commercial growth along the river's edge.

**FIGURE 2:** The East River Ferry



In some areas such as along industrial waterfronts, desires for public access must be balanced with the needs of industrial businesses, as well as safety and security concerns. The Brooklyn Navy Yard, a waterfront industrial park that is not open to the public, for instance, offers regular public tours of its site and will soon open a new visitor's center, to celebrate and share its industrial past, present and future.

A public realm proposal that has the potential to be the connective tissue to tie the waterfront together is the proposed 14-mile Brooklyn Waterfront Greenway. It will provide the means to connect, celebrate, restore and explore Brooklyn's diverse waterfront neighborhoods—residential, industrial and recreational— and the waterfront's unique environment. As shown in Figure 3, by connecting neighbors and neighborhoods to four major parks and over a dozen local open spaces on Brooklyn's historic waterfront, this development will extend from Newtown Creek to the Shore Parkway. The Brooklyn Waterfront Greenway will also serve as an intricate link to New York City's vastly growing greenway network - linking the Queens Greenway to the Shore Parkway Greenway and Staten Island<sup>4</sup>.

**FIGURE 3:** Brooklyn Waterfront Greenway Map



<sup>4</sup> [www.brooklyngreenway.org](http://www.brooklyngreenway.org) .

## SECTION 2B - A WATERFRONT FOR LIVING, WORKING AND PLAYING

Brooklyn's vibrant urban waterfront is a composite of a rich diversity of uses and experiences that include places for living, working and playing. Many of the most interesting waterfront areas across the country blend seemingly incompatible activities such as a restaurant amid ship repair docks (San Francisco), condominiums besides a commercial fishing industry (Portland, Maine), a park within a port (Oakland, California), a farmers' market next to a sewage treatment plant (Ithaca, New York) or condominiums besides an active port (Charleston, South Carolina)<sup>5</sup>.

### WATERFRONT LIVING

The skyline of New York's waterfront has been changing dramatically since the 1990s. Beginning in that decade, there have been 70 rezonings that have affected almost 3,000 acres of waterfront property across New York City. Vision 2020 explains that Brooklyn has had 9 waterfront rezonings affecting 560 acres of waterfront. These have resulted in radical transformations for large swaths of the waterfront. The neighborhoods of Greenpoint and Williamsburg have seen extensive new residential buildings, as shown in Figure 4. Others like Vinegar Hill, Dumbo, and Coney Island are seeing proposals that will translate into flourishing developments in the coming years.



**FIGURE 4:** New Residential Buildings in Williamsburg

Even areas with environmental challenges are seeing residential sales activity. For example, the Gowanus Canal was placed on the EPA's Superfund National Priorities List on March 4, 2010. Despite the Superfund designation, residential sales in the area continue. At 3rd and Bond, one block from the canal, there is a new LEED-Gold condominium building with 24 units. 90% have been sold for market price, so a sellout is expected<sup>6</sup>. Also, National Grid is cleaning the Public Place site which, upon completion, will be developed. The Hudson Companies will build 750 mixed use units there. 60% will be affordable, and 10% will be affordable for seniors.

Permanently changing the urban fabric and the associated demographics raises concerns about affordability, the endangerment of historic buildings and the creation of privatized enclaves. Rezoning proposals, such as those proposed in the thriving, mixed-use neighborhood of Dumbo, allow residential conversion of existing loft buildings and foster new mixed-use construction, while providing predictability and height limits that reflect the area's historic character<sup>7</sup>. The challenges facing planners are to find a way to make waterfront developments economically accessible to working class Brooklyn neighborhood residents, to design buildings to be historically and contextually sensitive and to provide mixed-use components to these residential buildings that attract art, culture and retail.

### WATERFRONT WORKING

The Port of New York and New Jersey is the largest on the east coast and the third largest in the country. Acknowledging the significance of this sector, the City created six Significant Maritime and Industrial Areas (SMIA) in the 1992 Comprehensive Waterfront Plan to protect and encourage concentrated working waterfront uses. Four of these SMIA's are in Brooklyn: Sunset Park, Red Hook, Brooklyn Navy Yard and Newtown Creek. Since their SMIA designations, these areas have rebounded as business centers. The 2008 Quarterly Census of Employment and Wages (QCEW) showed that there were almost 1400 firms and almost 44,000 jobs located in the SMIA's.

<sup>5</sup>Breen and Rigby, 1994.

<sup>6</sup>The Gowanus Canal Community Development Corporation.

<sup>7</sup>New York City Department of City Planning, Dumbo rezoning, <http://www.nyc.gov/html/dcp/html/dumbo/index.shtml>

The Brooklyn Navy Yard SMIA, shown in Figure 5, was the leader in job growth between 2000 and 2008 and has more than 2000 permanent jobs on site. The robust increase in business activity between 2001 and 2008 is attributed to a dramatic redevelopment effort, harnessing more than \$500 million in public and private investment<sup>8</sup>. Known in the past as America's premier shipbuilding facility, the Navy Yard encompasses 40 buildings spread over 300 acres and includes three fully functioning dry docks and four active piers. With diverse tenants such as movie studios, furniture manufacturers, ship repairers and electronics distributors, it is flourishing today as a modern industrial park and sets a precedent for other industrial neighborhoods by making environmental sustainability, preservation and the celebration of the Navy Yard's rich history core components of its revitalization.

**FIGURE 5:** The Brooklyn Navy Yard



## WATERFRONT PLAYING

New Yorkers are finding more and more ways to enjoy the hundreds of miles of waterfront that weave through this dense city. Residents enjoy outdoor markets, concerts, fireworks displays, kayaks, ferries and the pleasures of relaxing and taking in breathtaking views from beautiful waterfront parks. Per Vision 2020, nearly half of the city's waterfront is now part of its open space network and nearly 320 acres of waterfront land have been acquired since 1992 for parks. The goal is to expand access to both the water's edge and the water itself to allow residents and visitors to experience the city as a true waterfront metropolis.

The Brooklyn Waterfront has seen a sizeable share of this expansion, the most dramatic addition being the 85-acre Brooklyn Bridge Park, shown in Figure 6. Stretching 1.3 miles along the East River from north of the Manhattan Bridge to Atlantic Avenue, along Piers 1 through 6, the public space is filled with restored habitats and wetlands, playgrounds, fishing piers and beautifully landscaped areas.

**FIGURE 6:** Brooklyn Bridge Park



New parks have also been added as a result of private residential development on waterfronts, such as the recently finished Greentpoint / Williamsburg esplanade on Kent Avenue that includes walkways, seating areas and landscaped amenities. Other recreational attractions in Brooklyn include diverse activities, such as the amusement parks in Coney Island that are being preserved and enhanced, a proposed urban campground for 600 campsites at Floyd Bennett Field and a cruise terminal at Pier 12 in Red Hook. Preserving and restoring stretches of a re-naturalized waterfront can provide an opportunity to touch the water, swim in it and learn from it, bringing an immediate and heightened sense of connection and association to the waterfront.

<sup>8</sup> Department of City Planning, City of New York, 2011.

## SECTION 2C - AN ECOLOGICALLY SENSITIVE APPROACH

Generations of overfishing, the release of toxic elements and more recently the discharge of untreated sewage into the waterways have left their impact by affecting biodiversity and by making the waters unsuitable for swimming. According to the environmental organization Riverkeeper, more than 27 billion gallons of raw sewage and polluted storm water is discharged out of 460 combined sewage overflows (“CSOs”) into New York Harbor each year. They note that as little as one-twentieth of an inch of rain can overload the current system because of outmoded sewer systems. Improved storm water strategies through streetscape design, rainwater harvesting and green roofs will play a considerable part in reducing the storm water run-off, thereby improving the water quality<sup>9</sup>.

A proposal that has been generating some interest as an exciting precedent for environmental urbanism is that of +Pool, shown in Figure 7. The pool is designed to work like a giant strainer. Once placed in the river, it filters out the bacteria, pollutants and odors through concentric layers of water cleansing materials integrated directly into the pool walls, leaving only safe and swimmable water that meets the CDC and EPA’s standards of quality<sup>10</sup>. Another endeavor to clean our waters has been the reintroduction of oyster reefs. Shellfish are “ecosystem engineers,”<sup>11</sup> creating reefs that attract diverse flora and fauna and have the remarkable quality of being nature’s filtering devices. In partnership with The River Project and NY/NJ Baykeeper, the New York Harbor School helps manage 30 oyster gardens across the metropolitan area<sup>12</sup>. The New York City Department of Environment Protection is also pursuing two oyster pilot studies, off Dubois Point in Queens and Gerritsen Beach in Brooklyn, to evaluate whether climatic and environmental conditions in Jamaica Bay are suitable for oyster growth and reproduction<sup>13</sup>.

FIGURE 7: Rendering of +Pool



FIGURE 8: Sea-worthy Concrete Proposal



Another innovative strategy is the concept of using sea-worthy concrete material to make coastal and marine infrastructures, such as ports, marinas and seawalls. As shown in Figure 8, by manipulating the concrete’s composition and surface texture, the material can serve as as nursing grounds, hubs for filter feeding organisms and shallow water habitats. In addition, such ecological designs increase the operational life span and stability of marine infrastructures by encouraging biogenic build-up, thereby preventing the damage associated with aggressive marine environments<sup>14</sup>.

Building resilience to tropical storms and the resulting flooding will require a hard look at our water’s edge. Vision 2020 and the United States Environmental Protection Agency have proposed a three-prong strategy that includes: retreat, accommodation and protection. Retreat strategies include relocating vulnerable development out of harm’s way in a planned and controlled manner. Accommodation strategies allow areas to mitigate the effects of flooding with shoreline protection. Protection strategies include coastal hardening techniques such as seawalls, dikes, and levees; and soft edges such as natural vegetation, reefs, wetlands and beaches. At a building scale, retractable water-tight gates or barriers can be employed to protect doors and windows.

Sea level rise due to climate change and potential damage from storm surges are an undeniable reality for the city. The New York City Panel on Climate Change projects that by the 2050s, sea levels could be 12 to even 29 inches higher than they are today.

<sup>9</sup> <http://www.riverkeeper.org/>.

<sup>10</sup> <http://pluspool.org/>.

<sup>11</sup> Jones, Lawton and Shachak, 1993.

<sup>12</sup> [www.waterfrontalliance.org](http://www.waterfrontalliance.org).

<sup>13</sup> Department of City Planning, City of New York, 2011.

<sup>14</sup> [www.searc-consulting.com](http://www.searc-consulting.com).

# CHAPTER 3 - SUNSET PARK: A CASE STUDY OF AN EVOLVING WATERFRONT NEIGHBORHOOD

## SECTION 3A - NEIGHBORHOOD BACKGROUND

From the turn of the century through the 1960s, ships from all countries sailed into New York Harbor and lined up for berthing space at one of the many handsome finger piers that dotted Sunset Park’s shoreline. There was a steady demand for local labor to meet the cargo handling demands of the ships and the adjacent factories and warehouses<sup>15</sup>.

Over time, the neighborhood’s former industrial prominence began to decline, as the larger port area and more economical accommodations of New Jersey drew business away from Brooklyn. Despite this, the neighborhood has been able to maintain its importance as a working waterfront due to its strategic location along the Upper New York Bay and its access to a deep-water channel. Recognizing the potential of the Sunset Park neighborhood, New York City’s manufacturing sector policy initiatives designated the area to be one of the city’s six Significant Maritime Industrial Areas (SMIAs) and offered related tax incentives via the Industrial Business Zone program.

Figures 9 and 10 show a photograph and a map of the neighborhood.

**FIGURE 9:** Sunset Park Aerial Photograph



**FIGURE 10:** Sunset Park Plan



Today, Sunset Park is defined by a very distinct land use and zoning pattern, primarily because of the natural divide created by Third Avenue or Gowanus Expressway, shown in Figure 11. The industrial community is concentrated to the west of the expressway, and the east is defined by a thriving residential community surrounding a commercial Fifth Avenue. Reflective of its immigrant history, the demographics are diverse ethnically, racially and economically. 14% of the residents walk to work, in comparison to the city’s 10% average. Once known as South Brooklyn, and later considered part of Bay Ridge, Sunset Park was named in 1965 for the 25-acre park built in the 1890s. At approximately 150 feet above sea level, there is a high vantage point, overlooking the entire neighborhood with a impressive backdrop of the Manhattan skyline.

<sup>15</sup> Snyder-Grenier, 1996.

**FIGURE 11:** The Gowanus Expressway



In recent years, the Sunset Park waterfront neighborhood has been the subject of various studies and planning initiatives as the focus of new development is starting to shift towards South Brooklyn. Major planning efforts include the NYC EDC's Sunset Park Waterfront Vision Plan, the 197-A Plan led by Community Board 7 (CB7), shown in Figure 12, and most recently, the Sunset Park Brownfield Opportunity Area Plan was led by the United Puerto Rican Organization of Sunset Park (UPROSE). Other studies in the area focused on improvements to the First Avenue Rail Line and the Gowanus Expressway. Public realm projects examined the proposed Brooklyn Greenway Initiative and the proposed Bush Terminal Park Project.

**FIGURE 12:** The 197-A Plan

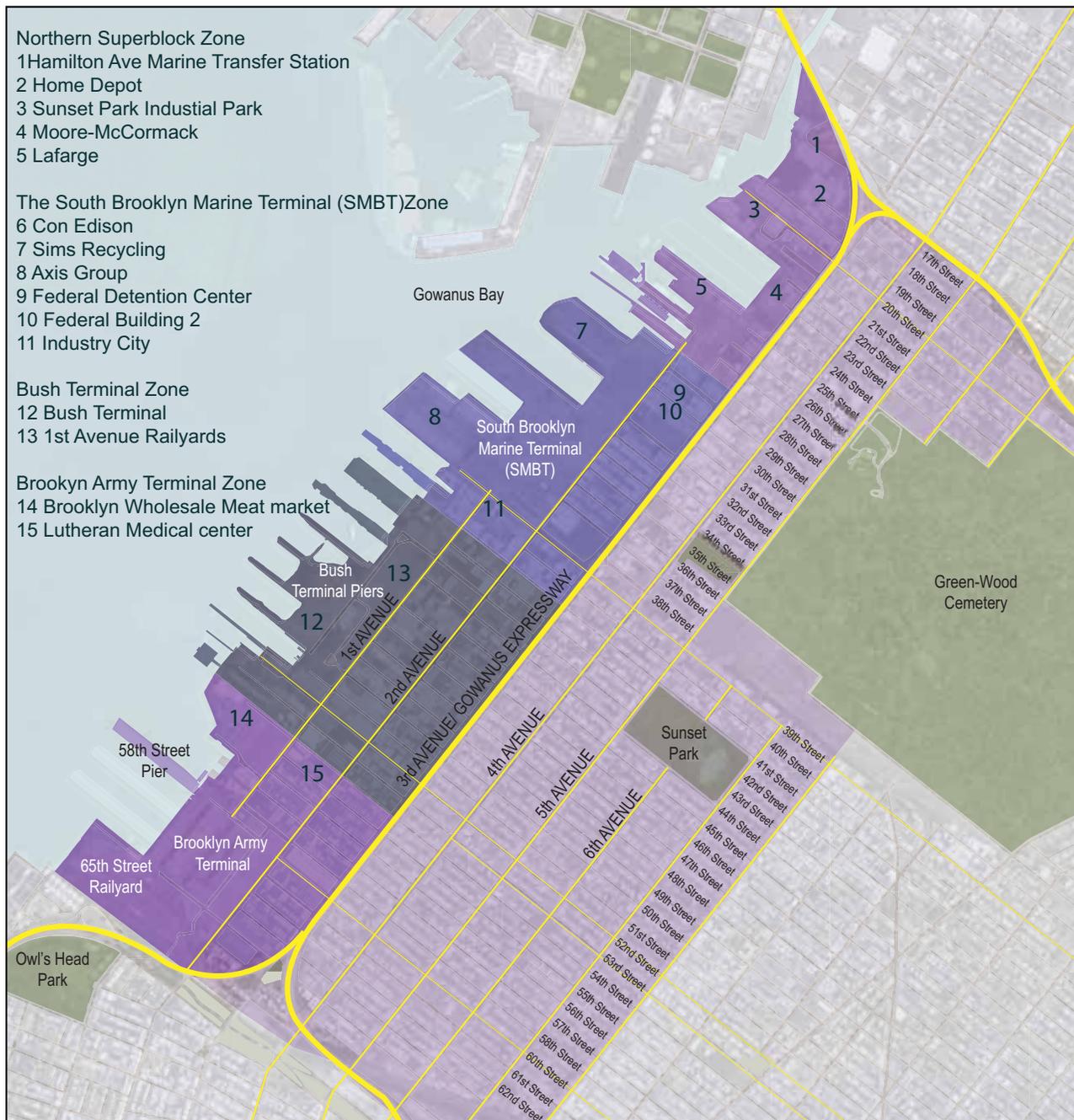


To plan for the future of this neighborhood, there is a need to envision a collective identity for the neighborhood as a whole that caters to both the residential and the industrial components and capitalizes on the urban synergies that can exist between them.

## SECTION 3B - AN INDUSTRIAL PERSPECTIVE

With an extensive industrial presence, proximity to a large labor pool and a transportation infrastructure that includes access to highways, adjacency to deep waters and a robust rail system, the Sunset Park waterfront is well suited for maritime and industrial uses and is a valuable and scarce resource for the city. Additionally, the neighborhood's designation as a Significant Maritime and Industrial Area, an Industrial Business Zone, a state Empire Zone and a federal HUB Zone provides access to a large number of tax and financial assistance programs for businesses seeking to develop or expand in the neighborhood.

FIGURE 13: Plan of Key Anchors



Key Anchors in the industrial neighborhood, west of the expressway, can be categorized in four zones. (See Figure 13.)<sup>16</sup>

<sup>16</sup> Uprose, 2009.

**FIGURE 14:** Con Edison Power Plant



1. Northern Superblock Zone (17th Street- 28th Street): Major utilities and public facilities located here include the Hamilton Avenue Waste Transfer Station and the Con Edison Power Plant (New York Power Authority), as shown in Figure 14. Other anchors include Jetro, Home Depot, the PDS Industrial Development along 19th Street, Sunset Park Industrial Park, KAMCO Construction and LaFarge North America. There are several auto and truck repair establishments in the area, as well as construction trades.

**FIGURE 15:** South Brooklyn Marine Terminal



2. The South Brooklyn Marine Terminal (SBMT) Zone (28th Street- 41st Street): The 88-acre SBMT site, shown in Figure 15, is owned by the City. It will be home to two new businesses that rely on waterborne transportation: Sims Municipal Recycling Facility and Axis Group, Inc., an automobile storage facility. Other anchors here include the Federal Detention Center, Federal Building #2, Costco and Industry City Associates. With a total of 5.5 million square feet of industrial floor area, Industry City Associates is the largest private industrial complex in Sunset Park. It houses approximately 150 firms, most of which are involved in manufacturing and warehousing operations.

**FIGURE 16:** Bush Terminal



3. Bush Terminal Zone (42nd Street- 54th Street): Owned by the City, the Bush Terminal is home to almost 100 manufacturing businesses and warehouse/distributions operations. The proposed Bush Terminal Park, shown in Figure 16, is planned for Piers 1 through 5, while Pier 6 will be leased to a water dependent industrial business. Key land uses in the area include film production, chemicals handling, apparel, auto related businesses and commercial/retail. There are very few back office uses in this zone.

**FIGURE 17:** Brooklyn Army Terminal



4. Brooklyn Army Terminal/ Lutheran Medical Center Zone (51st thru 65th Streets): This zone includes an assortment of uses including high density residential, commercial and retail. The Brooklyn Army Terminal (BAT), shown in Figure 17, is owned by the City and includes 97 acres of land. The terminal contains over 4 million square feet of industrial space, making it one of Brooklyn's largest industrial parks. It houses almost 70 firms. BAT Pier 4 at 58th Street, which is a large parking lot, is informally used for passive recreation on the waterfront by community members. Lutheran Medical Center and the adjacent Lutheran Augustana Center are together this area's major anchor.

## A GREEN INDUSTRY FUTURE

Sunset Park is on a path to develop its industrial future and has an opportunity to create a new precedent by defining itself as a Green Industry neighborhood. By adopting green building and manufacturing standards, it would serve as a model for environmentally sound industrial development and operations nationwide. The 197-A Plan recommended that the area be designated a “Sustainable Industrial District”.<sup>17</sup> Similarly, the Sunset Park Waterfront Vision Plan by the NYCEDC lists green recommendations for reducing energy loads, including solar array deployments on rooftops and advanced recycling initiatives that encourage industrial symbiosis.<sup>18</sup> The symbiosis involves traditionally separate industries engaging with one another in a collective approach. This reduces the reliance on outside resources and generates less waste. For example, a considerable advantage could be gained from having proximity to the planned Sims Municipal Recycling Facility at SBMT, shown in Figure 18. The new, state-of-the-art materials recovery facility that Sims is building will be capable of receiving barged materials and shipping out processed materials via both barge and rail, thereby minimizing truck traffic.

**FIGURE 18:** Rendering of the Sims Municipal Recycling Facility



It is important to foster a supportive environment for the growth of green industry in the neighborhood. The upper floors of industrial buildings can be used for other supportive functions such as job training sites, schools and community centers that can also provide ties to locals residing in the area. The Brooklyn-Rotterdam Waterfront Exchange Program recommended creating a Center for Green Tech Brooklyn, which is an innovative idea for business and academic centers to provide job training and incubate businesses in green technologies, such as clean energy, green recycling and climate change. The inspiration for the Center

comes from the RDM Campus in Rotterdam, The Netherlands. The campus currently serves 14 businesses and 1200 vocational and university students. Built on a former shipyard, RDM is working to reposition its historic port area in Stadshavens by retraining the labor force and reusing former shipping facilities<sup>19</sup>.

## A MEGA PORT FUTURE

Another vision that has been proposed for Sunset Park is making it an integral part of a mega port, situated on the east coast of the country. Major goods are received on our coast via the Suez Canal and the Panama Canal. The Panama Canal is being expanded, so that, starting in 2014, it will be able to accommodate larger container vessels. These bigger ‘Post-Panamax’ ships will be able to carry three times the present load and will need navigable water depths of 50 feet. To remain competitive, New York’s port needs to be upgraded to accommodate that depth.

Economic constraints are moving the industry towards a “hub and feeder system” on both coasts, and the port of New York and New Jersey has a real chance to be a Mega Hub Port. Advocates for making Brooklyn a part of the mega port, such as Congressman Jerry Nadler, are supporters of NYCEDC’s port plan of 1999. Accordingly, this group supports studies of a cross harbor tunnel to connect Sunset Park in Brooklyn to New Jersey. Dredged material would be used as landfill to create piers for the container port.

Michael Tomasky, in an article for the New York Magazine, defines Nadler’s idea as this: “Rebuild the Brooklyn piers, and revive Brooklyn as a deep water port. Build a rail link between Brooklyn and New Jersey for transport of goods to the American mainland, and make necessary improvements on existing rail lines to New England and Canada. Watch as waterfront warehouse buildings rouse themselves back to activity and as long dormant factory buildings along the rail lines, throughout Brooklyn and Queens, come back to life, because healthy ports always produce tremendous ancillary activity on warehouse, distribution and related service. Watch as unemployment drops, along with, incidentally, consumer prices on many goods, because it’ll cost less to get them to market”.<sup>20</sup>

<sup>17</sup> Brooklyn Community Board 7, 2007.

<sup>18</sup> New York City Economic Development Corporation, 2010.

<sup>19</sup> Brooklyn-Rotterdam Waterfront Exchange News, 2010.

## SECTION 3C - A RESIDENTIAL PERSPECTIVE

The urban fabric of the upland residential community in Sunset Park is primarily moderate density residential (R5, R5B, R6, R6A), as shown in Figure 19. Fifth Avenue is the district’s primary shopping street and is mapped C4-3 which permits shopping centers, offices and residential uses. M1-1 and M1-2 manufacturing districts in the upland portion are concentrated along the Bay Ridge rail corridor on the border of Community District 10 and the BMT rail yard alongside Green-Wood Cemetery.

**FIGURE 19:** Residential Fabric in Sunset Park



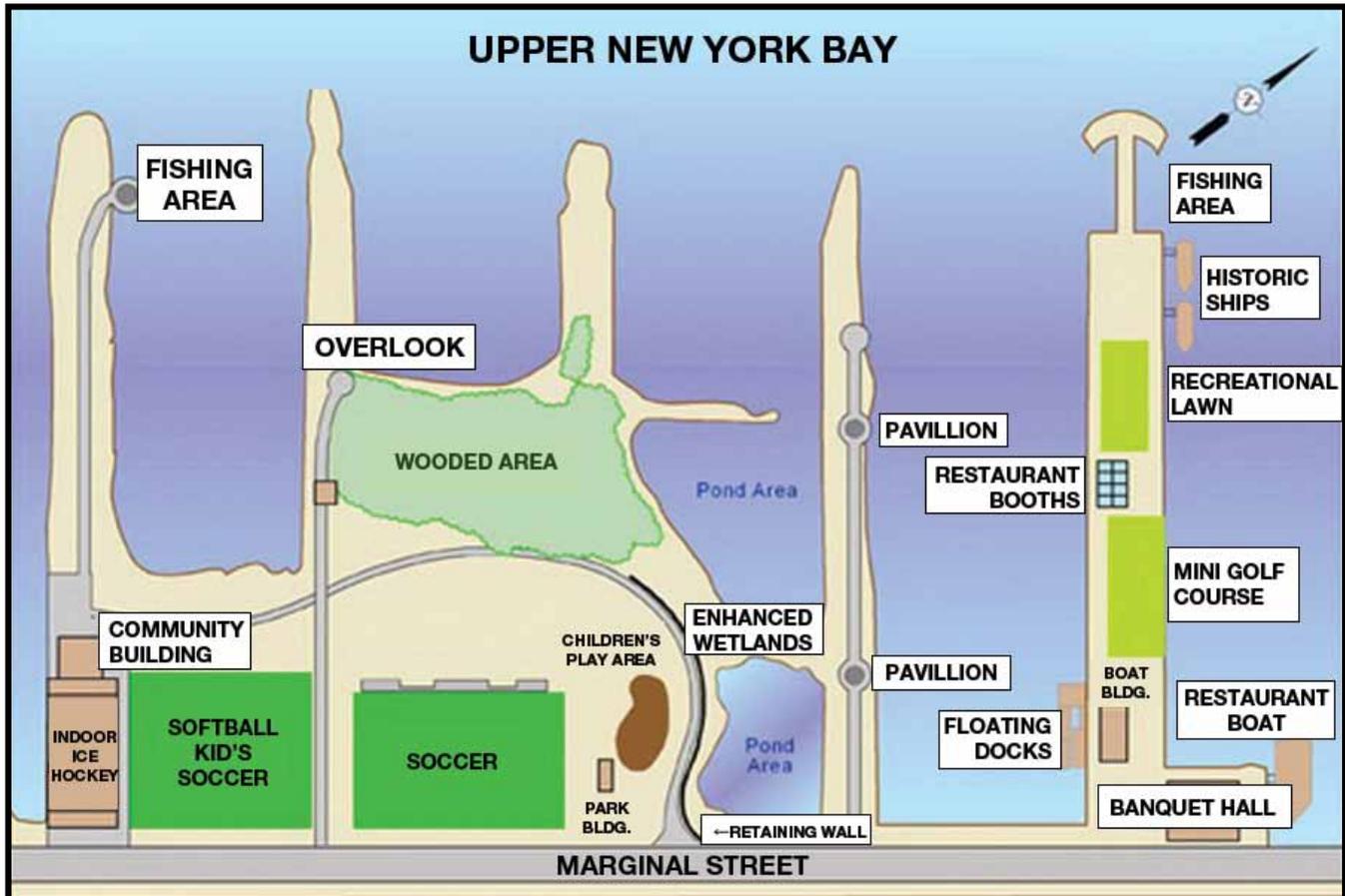
Proximity to new well-paying jobs on the waterfront is seen as a real asset by those community members who are in favor of a growing industrial neighbor. Certain residential concerns regarding social, educational, cultural and health needs do, however, need to be addressed in the long-term vision for the neighborhood.

<sup>20</sup> Tomasky, 1996.

## PUBLIC SPACE ON THE WATERFRONT

The new proposed Bush Terminal Park on the waterfront, shown in Figure 20, will be a much needed asset and will provide a waterfront presence to its residents. Its programming needs to reflect the desires of the community and easy access through the industrial fabric. Without hampering industrial needs, incisive public destinations on the waterfront can create a more equitable environment. A museum or an environmental learning center could analyze the maritime history of the area. A boat launch and storage facility for hand powered crafts such as kayaks and rowboats, along with a rowing and sailing program center are some of the recommendations from the 197-A Plan that would help bring diversity to the waterfront.

FIGURE 20: Bush Terminal Park



## ENVIRONMENTAL MITIGATION

Concerns about environmental hazards, such as fuel emissions from truck traffic have long been a concern of the community. Promoting green industrial practices will help to mitigate some of those concerns. Extending green technologies such as green buffers, permeable paving and green roofs, into the upland neighborhood with improved streetscapes will enhance the quality of life and set a precedent for an enjoyable environment to live, work and play.

## PRESERVING THE LOW SCALE CHARACTER AND VIEW CORRIDORS

Recent zoning changes along Park Slope's 4th Avenue have generated concerns in Sunset Park over preserving the low scale character of their urban fabric. The hilly topography of the neighborhood lends itself to panoramic views of the New York Harbor, Lower Manhattan and landmarks such as the Statue of Liberty, Green-Wood Cemetery and upland neighborhoods. District wide contextual zoning is recommended to protect against out-of-scale development and the potential impact of such development on unique views.

# AFFORDABLE HOUSING

Over recent years, population growth in the neighborhood has far exceeded the growth of residential developments and has placed a premium on existing housing. Per the 197-A Plan, affordability is currently the most pressing housing issue in the district. Fears of gentrification and displacement are growing as lower-income households can neither afford to move into the neighborhood nor sustain rent increases. Alternatives to infill upper floors of the industrial fabric, west of the expressway, with affordable housing options should be pursued.

## SECTION 3D - A SUPPORTIVE FRAMEWORK- PUBLIC REALM AND TRANSPORTATION

Both the residential and the industrial communities have a vital and central place in the Sunset Park neighborhood. The key to tying these programmatic uses together in the goal of creating a holistic neighborhood will be a strong, supportive framework of public realm and transportation that will allow easy access through the neighborhood and along the waterfront.

### PUBLIC REALM

One of the primary concerns of the residents of the Sunset Park neighborhood is lack of immediate access to public open green space, particularly in light of substantial population growth in the district. The 24.5-acre Sunset Park, shown in Figure 21, is the key open space in the area and is heavily used. Although the proximate 478-acre Green-Wood Cemetery, shown in Figure 22, is open to the public, it is not viewed or used as an open space amenity. With bucolic hills, glacial ponds, scenic pathways and monuments, it is a regional magnet for history buffs and bird watchers, but not a local destination for those looking for active recreational alternatives. The district's two-and-a-half miles of shoreline offer dramatic views of New York Harbor and the Manhattan skyline, shown in Figure 23, but other than Pier 4 at the Brooklyn Army Terminal, there is no public access to the waterfront.

FIGURE 21: Sunset Park



FIGURE 22: Green-Wood Cemetery



FIGURE 23: Manhattan and NY Harbor Views from Sunset Park



## BUSH TERMINAL PIERS WATERFRONT PARK

The proposed 23.7-acre Bush Terminal Park will be a much-needed new waterfront park for the neighborhood. It will be located on Piers 1 through 5 with a recreational corridor on Pier 6. Linking with the Sunset Park Greenway, it will be part of a larger public space network, adding another destination to a citywide network of a waterfront greenway. Remediation work is currently going on to treat years of toxic hazardous waste, including oils, sludge and wastewater that have built up on the site.

## BROOKLYN GREENWAY INITIATIVE

The future Sunset Park Greenway will be an important link in the larger Brooklyn greenway network, connecting the long-established Shore Road Greenway with the proposed Brooklyn Waterfront Greenway. The result will be a greenway route that runs continuously from the community of Greenpoint on Newtown Creek to the Rockaways on Jamaica Bay. This will be a step towards building a more sustainable city that combines open space opportunities with emission-free transportation modes. Addressing the lack of public park space in the neighborhood, the Greenway will not merely be a pathway to encourage activities such as walking, cycling and rollerblading; it will also create important new open space for the local community to enjoy<sup>21</sup>.

## KEY CORRIDORS OF CONNECTION

Improved and enhanced east-west streets that provide pedestrian and bike connections will be critical in tying the proposed Bush Terminal Park and the Greenway to the upland housing and other public space amenities in the neighborhood. As shown in Figure 24, the “Conceptual Plan for a Sunset Park Greenway” focuses on key east-west “connector streets” as a priority in facilitating access to connect with landmarks in the neighborhood. The goal is to eventually improve all 45 of Sunset Park’s east-west streets.

**FIGURE 24:** Public Realm Proposals in the Neighborhood



<sup>21</sup>Pratt Center for Community Development, “Conceptual Plan for a Sunset Park Greenway,” 2008.

# TRANSPORTATION

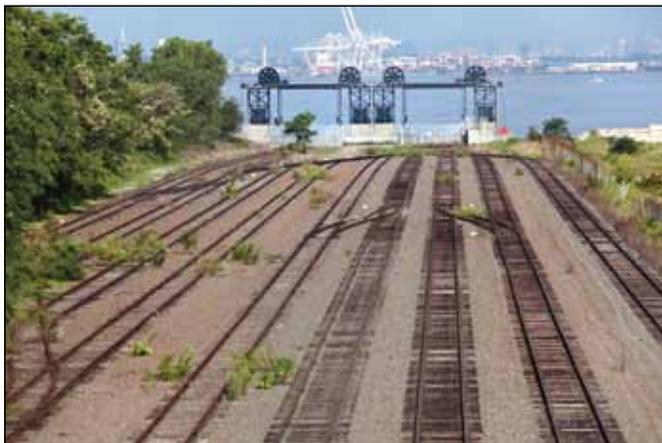
The Sunset Park waterfront is defined largely by the rail and marine infrastructure. The industries on the waterfront have benefited from their strategic proximity to this robust transportation network. Capitalizing on this invaluable asset, the City has planned several enhancements to the rail infrastructure to reduce dependence on trucking and expressways and to promote environmentally sensitive and economically sound alternatives. Figure 25 depicts the transportations initiatives being considered for the neighborhood.

**FIGURE 25:** Transportation Initiatives in the Neighborhood



## RAIL INFRASTRUCTURE: RAIL YARDS AND THE FIRST AVENUE RAIL LINE

**FIGURE 26:** The 65th Street Rail Yard



The rail freight operations in the area are served by two waterfront rail yards: the 65th Street Rail Yard, shown in Figure 26, and the First Avenue Rail Yard (also referred to as the Bush Terminal Yard or 51st Street Rail Yard). Both the yards have “float bridges” where rail cars can be loaded onto barges and shipped to New Jersey or other destinations in Brooklyn. The First Avenue Rail Line runs south to the Brooklyn Army Terminal, and the 65th Street Rail Yard runs north, via 41st Street, to Second Avenue. The rail line, although underutilized today, had a prominent role during the peak of industrial activity in the early 20th Century, and was designed so that the tracks would lead directly into the industrial buildings, creating easy access to shipments of goods. The City has since planned upgrades to the system to utilize this asset to its complete potential.

## **CROSS HARBOR FREIGHT MOVEMENT PROJECT**

In order to provide enhanced freight transportation across the harbor between New York City and New Jersey, New York has developed proposals for a cross harbor rail freight connection between Brooklyn, Queens and Long Island and a national rail freight network in New Jersey. Also proposed are improvements to the rail float operations and the construction of a dedicated rail freight tunnel. According to the Cross Harbor Freight Movement Project<sup>22</sup>, an organization formed in 2001 to plan and promote the tunnel project, the demand for goods in the New York metropolitan area is projected to grow approximately 70% by 2025. The group argues that the freight transport system in New York City relies predominantly on truck transport over a limited number of river crossings. This causes congestion, delays and disruptions in shipping services, creating additional costs for shippers and buyers.

The Cross Harbor Freight Movement Project, spearheaded by Congressman Jerrold Nadler, is aimed at improving the efficiency of freight movement in the region and could substantially reduce the level of through truck traffic by 870,000 annual trips. The tunnel alternative is also considered essential for the development of a container terminal in Sunset Park, since connection to the tunnel would substantially reduce the amount of land needed for container handling and storage. A rail spur connecting to the tunnel would enable containers to transport directly from the ships to inland intermodal freight facilities by shuttle train. Expansion of rail freight opportunities could also potentially reduce truck traffic. The PANYNJ is conducting an environmental impact statement, in conjunction with the Federal Highway Administration.

## **THE GOWANUS EXPRESSWAY (INTERSTATE ROUTE I-278)**

The Gowanus Expressway, which is part of the Brooklyn-Queens Expressway (BQE) plays a critical role in connecting the Sunset Park neighborhood to the larger metropolitan and regional transportation network. While this has been a real asset for the industrial community, there have been concerns about congestion, the condition of the structure and the efficiency of the system. The Expressway also negatively impacts the area as a source of air and noise pollution.

Plans for improvements to the Expressway started in the 1990s and have included several alternatives; including rebuilding the existing elevated structure or replacing it with an at-grade boulevard or a tunnel. Rebuilding an elevated expressway in the 21st century that bisects a neighborhood would be a shortsighted solution. Pursuing alternate options would provide an opportunity to blur the hard line divide between the residential and the industrial community.

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<sup>22</sup>New York City Economic Development Corporation, 2000

# CONCLUSIONS

The Brooklyn waterfront is undergoing a rapid transformation. Within the borough, the challenges of Sunset Park are emblematic of similar urban waterfront industrial neighborhoods across the country.

## A. BUILD UPON WHAT EXISTS TO CREATE A TRULY AUTHENTIC URBAN WATERFRONT NEIGHBORHOOD

Sunset Park has a rich industrial history and now has an opportunity to craft its future industrial role in harmony with its adjacent residential community.

- The waterfront should be maximized for water-dependent industrial and maritime uses and for public realm amenities. Uses such as warehouse storage facilities and new condominium buildings are not desirable uses for the Sunset Park waterfront and should be located inland. By using green manufacturing and building standards, Sunset Park can set a new precedent for the future of industry that is completely compatible with a mixed-use neighborhood.
- Public realm amenities such as parks and greenways should be incorporated on the waterfront, and easy access to them from the upland communities is an advisable part of the planning process. Careful incisive additions of other destinations, such as museums or learning centers, on the waterfront will inculcate a deeper appreciation and understanding of the working waterfront and draw local residents and visitors to the area.

## B. FIND A LINK TO CONNECT INDUSTRY AND HOUSING

One of the strongest synergies that arise out of the industrial and residential adjacency is the access to a strong labor workforce and therefore a significant provision of blue collar jobs for the neighborhood. Pockets of underutilized fabric can then be filled with education centers in the form of research, job training centers and trade schools.

- Upper floors of industrial warehouse buildings which are not compatible for industry would serve well for these uses as well as others such as artist lofts, cultural centers and community centers. This will blur the hard line divide between industry and housing.
- The proposed education centers should build upon the strengths of the local industries. For instance, maritime related trade schools that train individuals in ship and boat repairs could be a welcome asset for the community and the city. The new bioscience research center at the Brooklyn Army Terminal, as proposed by the City, is another successful example. Forming synergies with the local anchor, the Lutheran Medical Center, could begin a robust medical research hub in Sunset Park<sup>23</sup>.
- Large established universities such as the Fashion Institute of Technology and New York University could partner with local businesses, such as apparel manufacturing and artisanal food industries, to create incubator schools in the neighborhood which could provide training on site.

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<sup>23</sup> Brooklyn Army Terminal Research Center, <http://www.nycbiotech.org/bat.html>

## **C. CREATE A ROBUST PUBLIC REALM AND TRANSPORTATION NETWORK**

Recommendations in this area are two-fold.

- Equitable access to the waterfront with additions such as the Bush Terminal Park and the Brooklyn Greenway are critical to creating a waterfront presence for the residential neighborhood and will eliminate concerns of conflicting claims to the waterfront.
- Improvements to the transportation network to rely on greener alternatives will reduce the presence of trucking along highways. Advanced sustainable streetscapes will allow easy access to the destinations on the waterfront and better link together the fragmented neighborhood.

## **D. THINK LOCAL, REGIONAL AND GLOBAL**

Sunset Park has an opportunity to give Brooklyn a prominent role in the global economic market through the location of a world class, deep-water port facility on its waterfront. It is a compelling vision both for the neighborhood and the city and should be pursued while incorporating environmentally sound technologies and systems. These long-term visionary ideas should be considered in tandem with the future of the adjacent residential uses and the smaller scale industrial enterprises that are in the neighborhood.

## **E. ESTABLISH A VISIONARY PLAN WITH IMMEDIATE ACTION PLANS**

It is an opportune time to think in a radical and visionary way for the future of Brooklyn's waterfront. The future development of the waterfront should be planned in a manner that addresses short term, intermediate and long term plans. With the reality of limited resources, these plans and actions should address both industrial and residential needs at every stage of development and do so in a manner that is compatible with the larger vision for the New York City area.

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<sup>26</sup> Data Source for maps 13, 25 and 26: UPROSE. (2009, September). "Sunset Park Brownfield Opportunity Area, Step 1: Pre-Nomination Study Report" and Brooklyn Community Board 7. (2007, June). "New Connections/New Opportunities, Sunset Park 197-A Plan."

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