

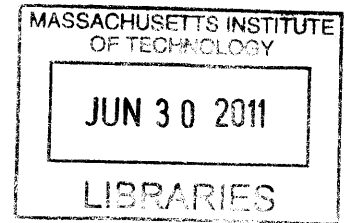
**The Urban Waterfront in Flux:  
Accommodating Uncertainty in Brooklyn**

**ARCHIVES**

by

**Jaime Renée Young**

Bachelor of Landscape Architecture  
University of Washington  
Seattle, Washington (2004)



Submitted to the Department of Urban Studies and Planning in partial fulfillment  
of the requirements for the degree of

**MASTER IN CITY PLANNING**

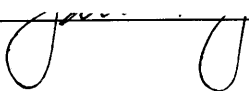
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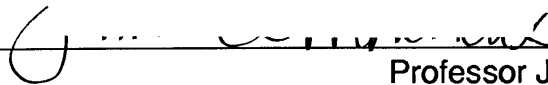
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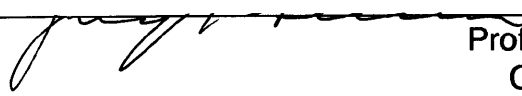
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# **The Urban Waterfront in Flux: Accommodating Uncertainty in Brooklyn**

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**Jaime Renée Young**

Submitted to the Department of Urban Studies and Planning in partial fulfillment of the requirements for the degree of Master in City Planning

## **Abstract**

Urban waterfronts are host to every shade of a city's development. Once pulsating with trade and production, the very reason for the city's existence, the mid 20<sup>th</sup> century brought jarring macroeconomic shifts and technological change that left this vibrant edge largely abandoned. Nothing remains static at the shore; new value was found in the void amidst the remaining industry. Warehouses, factories, and waterfront infrastructure have often proven adaptable to the post-industrial city. As we continue to redevelop this urban waterfront, are our methods and institutions allowing for flexibility for the next wave of change? I argue that we could improve. As various actors with conflicting interests compete for space at the waterfront, their constructions lend a level of permanence to the built environment. Because the urban form is so enduring, we should seek to maximize flexibility in order to avoid the negative aspects of obsolescence and decline.

In this research I investigate the forces that influence our development decisions, the reasons for each claim to the waterfront, and the processes by which one is prioritized over another through the lens of Brooklyn, New York. Brooklyn has a great diversity of land uses, industries, and demographics. Its history is colorful and has led to a present condition replete with challenge and opportunity along the shore. Residential development, industrial retention, maritime industry, green space, and access, are some of the themes that need to be reconciled. Through its recent waterfront development we see clear evidence of societal values manifest in the built environment. It is imperative that we recognize the fleeting nature of even these as well as the exogenous variables that can swiftly transform our way of life.

As the city experiences growth and decline, the waterfront in flux is host to both sides of the growth curve. Through both market outcomes and tools of government intervention, cities can seek to set the conditions to gracefully accommodate change and give those in the future a voice. Like a distant object looming on the horizon, the uncertain and the unforeseen are not so formidable if we plan for their imminent arrival.

**John P. de Monchaux**

Professor of Architecture and Planning, Emeritus  
Thesis Advisor

**Eran Ben-Joseph, PhD**

Professor of Landscape Architecture and Planning  
Thesis Reader

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## **Biographical Note**

Jaime recently completed a Master in City Planning and Certificate in Urban Design at MIT's Department of Urban Studies and Planning (DUSP). Here she specialized in city design and development and worked on projects in planning and design from the regional to the site scale. Some of her undertakings included green stormwater infrastructure for Philadelphia, heritage conservation in New Delhi, a bicycle network for Boston, and energy-efficient neighborhoods in Beijing. Her research projects ranged from disused rail corridors as urban nature to stimulating immigrant entrepreneurship in the informal sector to assessing development patterns and wildfire risk using GIS.

Before attending MIT, Jaime practiced as a landscape architect in Orange County, California. Her work consisted of developing concepts and exhibits, construction document plans, details, and cost estimates for landscape projects. New and redevelopment projects included parks and open spaces, trail networks, streetscapes, and urban designs in Southern California and the Western U.S. Jaime also volunteered with Orange County Second Harvest and was an avid participant in the local chapter of Toastmasters International.

As an undergraduate at the University of Washington, Jaime studied landscape architecture with a focus on urban ecological design. A native of Seattle, she owes her love for exploring the scintillating, the gritty, the wild, the forgotten, and everything urban, to the Emerald City.

## **Acknowledgements**

To my advisor John de Monchaux for his dedication in meeting with me on a weekly basis to discuss ideas and progress of research. Not only did each session with him enhance my critical thinking about the topic of my research but his drawing of analogies and invoking of metaphors pushed me to think beyond. His insights were thought-provoking, new, and rich in every conversation.

To my reader Eran Ben-Joseph, my academic Advisor Anne Spirn, and my other professors who have contributed their wisdom and ideas through coursework, class lectures, and conversations. I hold you all in high esteem.

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To my family for their continued encouragement and for keeping me in their thoughts and prayers from across the continent. I love you all.



## **The Urban Waterfront in Flux: Accommodating Uncertainty in Brooklyn**

“In printing, a margin is that odd space between the edge of the text and the edge of the page, a space that may shrink or expand slightly without troubling the reader, a space the author may fill with gloss, a space the reader may embellish with hand-scrawled notes. Margin in fact derives from *marge*, an old term for coast or shore, strong and vital in Spenser’s time but obsolescent by the nineteenth century. *Marginalia* now connotes things unimportant, extrinsic, nonessential. That is unfortunate, for perhaps what happens in the marginal zone is exactly that which is important, intrinsic, essential, that which illuminates not only larger issues of landscape, of environmental presentiments, but whole components of American culture.”

--John R. Stilgoe, in *Alongshore*



# I. INTRODUCTON

Urban waterfronts are hosts to every shade of a city's development. One will find forgotten brownfields, vacant warehouses, crumbling piers, and struggling shipyards. In time, these activities are replaced by tranquil promenades, glossy residential towers, linear parks, and fancy marinas. Seemingly dichotomous, these functions and forms coexist. Succession at the margin of city and submerged need not imply a linear or consecutive process. There is all manner of tenure in time and activity in space while a select few remain fixed. Redevelopment on the waterfront is a relentless process, perhaps more dynamic than in any other part of the city.

## BACKGROUND

With Brooklyn as an example, I am investigating how development<sup>1</sup> and redevelopment<sup>2</sup> at the waterfront can accommodate unforeseen change<sup>3</sup> over time. Towns that came to make up the present-day borough of Brooklyn were settled because of their natural features that allowed for trade and transport of goods. As Brooklyn matured and industrialization marched on, the urban waterfront had a specific purpose and reason for being. Shipbuilding, trade, warehousing, cargo handling, and manufacturing were all part of the port districts. When macroeconomic shifts jolted the mid-twentieth century, the waterfront lost its historic identity and the remaining infrastructure<sup>4</sup> has been both blessing and curse. Past constructions of urbanism—unfettered industrial growth and its associated effluent, edifices, fill, and extraction—have left pervasive contamination that has presented difficulty for adapting to new conditions. However it has also left a valuable legacy. Warehouses may be abandoned reminders of decay, or beautifully reconfigured to suit current needs with a precedent for good urban form. Rail infrastructure may remain essential to movement through the city and large lots provide a plethora of possibilities. Post-industrial era waterfront sites are enduring venues for reshaping the urban environment and our best efforts to enable them to accommodate ongoing change will be to the advantage of the next generations.

Former and extant manufacturing areas remain adjacent to residential neighborhoods, the residents of which have longstanding interest in transformations that occur at their

---

<sup>1</sup>I use the term *development* as the general concept of growth and progress with construction of buildings and infrastructure, gray or green.

<sup>2</sup>The term *redevelopment* I use in the same manner but in specific reference to areas that have been derelict or in ruin; development as resurgence.

<sup>3</sup>Unforeseen change implies that change which is sudden or spontaneous because it springs from exogenous factors, or unanticipated because indicators were ignored out of negligence.

<sup>4</sup>*Infrastructure* refers to both the systems of physical objects—rail networks, street configurations, bulkheads, etc.—as well as institutions such as port authority and city governance.

waterfront. They may welcome economic development and filling in of vacancies, but hesitate at the thought of gentrification. Since manufacturing and industrial operations vanished in droves leaving huge parcels of land in their wake, real estate developers have found success in urban waterfronts because of proximity to central city services as well as spectacular views. As the inner city again has become an attractive place to live, conscious decisions must be made about the manner in which waterfront land is to develop.

### **RESEARCH QUESTION AND HYPOTHESIS**

Cycles of growth and decline, diverging stakeholder interests, and climate change are some of the conditions to be found. Urban waterfronts have been shaped over time by both market forces and policy interventions; these same influences continue into the future. Are policy makers giving enough thought to uncertainties in the future of our urban waterfronts or are we planning for a future as if it were a mere continuation of the present? My aim is to address this question in light of conflicts over space and visions to see if and how planning for flexibility can better prepare for the unknowable technological, economic and social shifts that will inevitably occur. My hypothesis is that waterfront planning still struggles to adequately address unforeseen conditions.

### **METHODOLOGY**

My research methods look at the way in which city land use regulations and planning documents have set the stage for what results in physical form. Waterfront zoning code, community revitalization plans, comprehensive waterfront plans, and other such official tools have been created to guide development. How strongly do these mechanisms affect the land use, structures, and infrastructure in the way they are (un)built? Does waterfront development adhere to documents the city sets out as visioning tools, with laws behind them, or do variances and the like outweigh the grand vision? Redevelopment at the waterfront is a necessarily incremental process and as such, tools are employed to provide a cohesive vision for the future of an ever-changing edge environment. Do these tools accommodate uncertainty in the way the city evolves and if so, how? In addition to planning documents, I investigate waterfront development literature, blogs, journal and news articles, and interview people with interest or influence in the waterfront for alternative perspectives.

## **CASE STUDY**

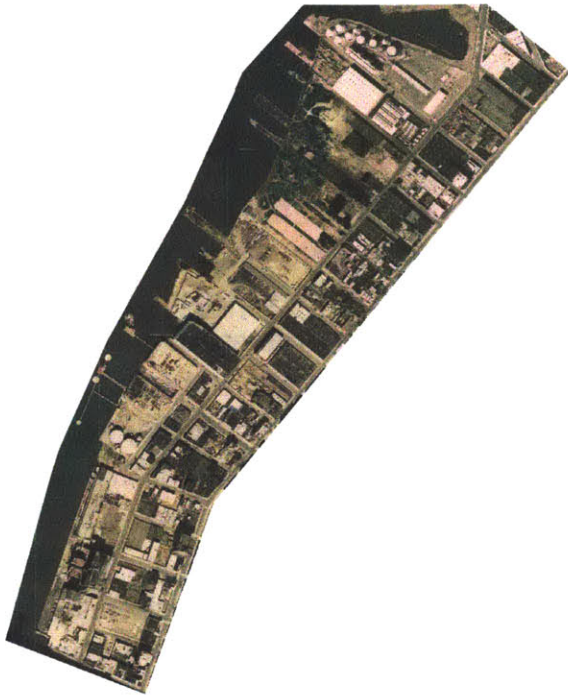
I chose Brooklyn, New York as a case study because it embodies the notion of the waterfront in flux<sup>5</sup>; its many waterfront neighborhoods sit restlessly in the throes (or delights) of transition. Brooklyn has historically been reliant on a maritime and manufacturing economy. Today, Brooklyn's waterfront parcels support maritime use, warehousing, manufacturing, noxious industries, new residential, and others still lie vacant. Despite overall industrial decline in America, Brooklyn still has a footing in maritime and manufacturing industries, which play an important role economically for the borough and New York City as a whole. Brooklyn has dealt with waterfront land in this post-industrial era in several different ways; the Greenpoint-Williamsburg neighborhoods have been rezoned so that much of the industrial land is and will continue to change over to residential and commercial uses with public promenades along the water. The city has also created 'Industrial Business Zones' to promote retention of industry in certain waterfront districts of Greenpoint-Williamsburg, Brooklyn Navy Yard, Sunset Park and Red Hook and others. The coexistence of redevelopment with traditional and new era industry next to established neighborhoods has incited much tension. The borough of Brooklyn is like a transect, crossing through everything a city might encounter, and is currently undergoing transition all along its shores. This makes for a case study that is dynamic and its findings are potentially applicable to areas with any of the multiplicity of conditions seen herein.

## **ORGANIZATION**

The introduction serves to acquaint the reader with the topic and purpose of the study, the methodology, and organization of the thesis. In chapter one I begin the investigation by delving into the roots of conflict over waterfront space, initiated by the rapid change in conditions that led to abandonment. I then discuss forces that influence the conditions at hand; those behind regeneration and the various interests that compete for priority as well as the methods of development in practice to achieve desired outcomes. Chapter two takes the context of Brooklyn and gives an outline of the tools New York has in its repertoire that regulate development on the waterfront. Chapter three journeys through a brief history of two Brooklyn neighborhoods that have recently seen dramatic change and then details the way in which accepted notions of development processes have led to distinct outcomes of land use in each case. In chapter four I describe the prevailing issues Brooklyn contends with and the premises on which they rest. The last chapter, five, uses the case study to look at planning for flexibility, adaptability, and uncertainty by understanding the role of government and the tools it has at its disposal to effect change. It looks at notions of the future and its implicit uncertainty while highlighting some important issues to consider when planning for flexibility in Brooklyn.

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<sup>5</sup> *Flux* in this thesis is used to mean a state of constant change or transformation; motion, fluidity. Alternate meanings of a tidal flow, current, or deluge lend apt metaphors.



1996



2008



1924



1951

*Figure 1: Aerial Image of Williamsburg*  
*Source: City of New York*

## 2. CLAIMS AND CONFLICT

### WHOSE WATERFRONT IS IT?

While some of the traditional maritime industry<sup>6</sup> remains, void came to define much of the land formerly associated with port activity. Maritime industry holds a historic claim to this land but with its diminished existence in the urban realm, the stage has been set for territorial contests. Tensions continuously arise among the protagonists through their divergent temporal and spatial perspectives. And waterfronts are in themselves ambivalent: they are dependent upon local economies in which they are embedded and at the same time, are strategic sites for global competitiveness. They embody the past but are tangible spaces of opportunity in the present. This vacillation and flux mean change is both imminent and recurring. Each activity as is supplants the next, holds a certain capacity to accommodate change. As decisions are arbitrated, not only is the question asked “whose waterfront is it,” but “whose waterfront will it be?” This consideration of both present and future protagonists will make the inevitable next transition that much smoother.

### CHANGING CONDITIONS

The pace and magnitude of change that took place on the waterfront in the last century have made it a subject and object of extreme metamorphosis. Several key factors have influenced the physical character of the waterfront particularly post-World War II. Technological change in movement of goods was an important instigator: small-scale barging gave way to rail, and urban rail networks to highways. Break-bulk cargo ships virtually disappeared along with their wharves, giving way to container terminals distant from the core of the old waterfront. Cargo handling, when consolidated to huge nodes where open space was available, meant it was no longer the primary land use of the urban waterfront. The advent of containerization streamlined the logistics process, rendering obsolete the docks, wharves, warehouses, and longshoremen. It left the close-knit waterfront neighborhoods devoid of their livelihood and the urban maritime character that defined their identity.

The decline of American manufacturing also led to a radical shift in waterfront land use and character. Other associated factors such as labor arbitrage, the rise of the cruise industry, federal or state environmental regulations, military base closure, and funding for dredging projects resulted in major alterations. Agents of change also sprang from the

---

<sup>6</sup> In the context of this research, I use the term *industry* to refer to all manner of manufacturing, disposal or production of goods and energy, and the warehousing, movement and trade thereof. *Maritime industry* I use specifically for that having to do with water-related activities, resources, and production, and the movement of goods by water.

local level, including regional economic and political climates and growing dependence on private capital and public/private partnerships (Brown 2009). These institutional, technological, and economic changes were quickly manifested in the physical form of the urban environment.

The following three figures depict physical change in the Williamsburg neighborhood of Brooklyn over the last century. *Figure 1: Aerial Image* portrays the neighborhood in plan view and draws attention to the diminishing use of the waterfront for shipping and transport. *Figure 2: Figure Ground* illustrates the changing urban form and intensity of land use through a study of building footprint, railcars, and ships. *Figure 3: Edge Morphology* shows the metamorphosis of the edge itself by highlighting the gradual disappearance of piers.

## **OBSOLESCENCE**

One way of thinking about transition and supplanting of activities is through the obsolescence of past conditions. Waterfronts and their physical characteristics that remain from the previous era seem to embody this notion. Structures, infrastructure, and even urban form are rendered obsolete when there is a change in the requirements or expectations related to their function or use. Not necessarily dysfunctional, these things may still perform but below current standards or for a different purpose than they were originally intended. A break-bulk port adapted to containerized shipping with the commensurate cranes in place has a function, and yet it is too small to compete with the larger regional intermodal terminal. Small roads designed for pedestrians and small-scale movement of goods around the city are hard-pressed to accommodate tractor-trailers; designed for a wide highway, eighteen-wheelers are difficult to maneuver on small streets and their presence is anti-thetical to the human-scaled row-house atmosphere. In other cases, infrastructure might be quite successful at adapting to that for which it was not designed. This is quite evident in the ubiquitous warehouse conversion to lofts, rail lines to bike trails, and piers to parks. Some argue that designers and planners have largely ignored the potential impact of obsolescence when implementing new projects and that the idea of obsolescence should be paramount from the outset so that the project is better able to adapt over time. Obsolescence can be categorically broken down into four types based on the reasons behind the underlying change (Lerner 1996).

**Technological changes** influence the scope or levels of services infrastructure is to provide, e.g., when a newly introduced aircraft cannot be served at existing airport terminal gates.

**Regulatory changes** impose new requirements on infrastructure, e.g., when transit vehicles have to be retired or retrofitted to make them fully accessible to mobility-impaired passengers.

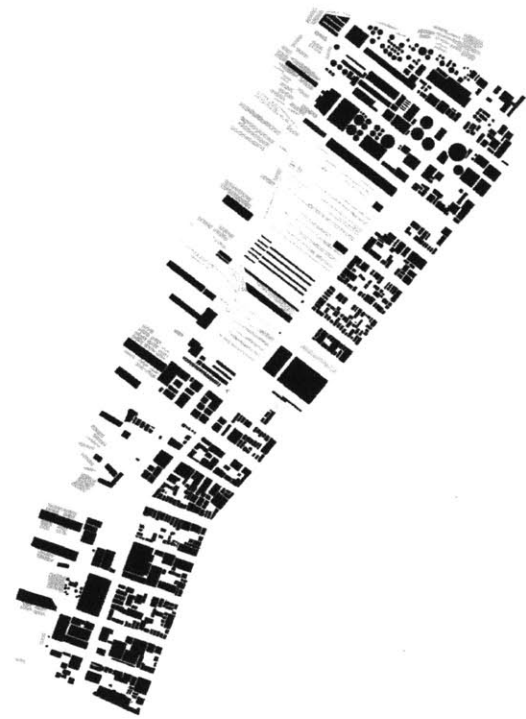
**Economic or social changes** in the markets within a region can substantially



1996



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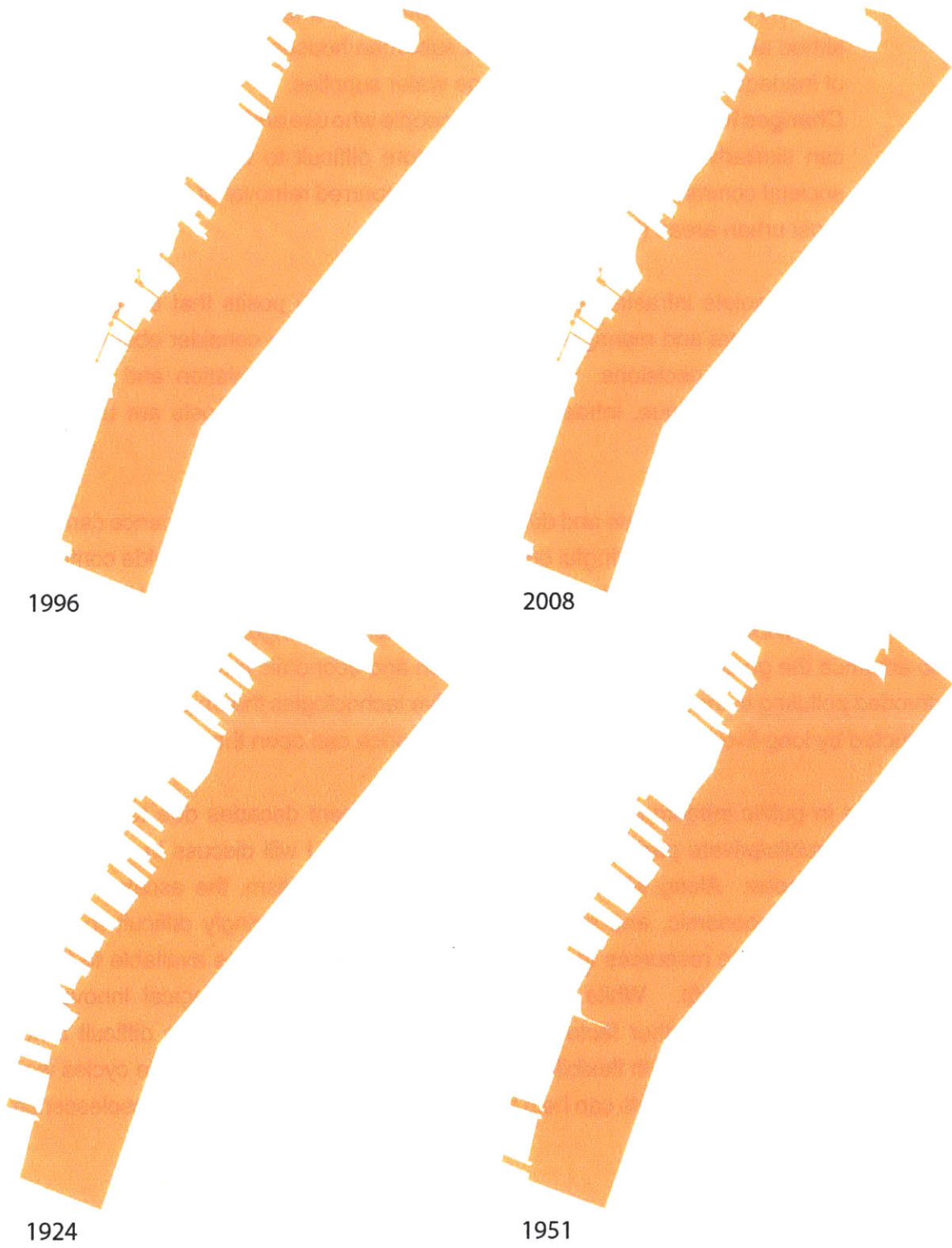


Figure 3: Edge Morphology



alter the demands placed on infrastructure, e.g., when residential construction aimed at satisfying demand for new suburban houses necessitates upgrading of inadequate rural roads and village water supplies.

**Changes in value or behavior** of the people who use and own the infrastructure can similarly alter demands but are more difficult to foresee, e.g., when a societal commitment to private auto travel spurred removal of street railways in most urban areas (Lemer 1996, 154).

In his work on obsolete infrastructure, Andrew Lemer (1996) posits that contemporary infrastructure designers and managers would do well to explicitly consider obsolescence as a basis for making decisions. As long as technological innovation and changing economic conditions continue, infrastructure obsolescence and its costs are ultimately unavoidable (Lemer 1996).

However the connotation of waste and decay need not be implicit. Obsolescence can spur creativity and lead to more meaningful outcomes that are in context and provide continuity in the urban fabric. It can play a valuable role in speeding up the introduction of new infrastructure technology into systems of long-lived facilities. Ongoing obsolescence can also advance the goals of environmental protection and economic growth. It can replace outmoded polluting technology with more productive technologies that might otherwise be obstructed by long-lived facilities. In short, obsolescence can open the way to innovation.

Investment in public infrastructure is more difficult in recent decades due to increased reliance on public/private partnerships (Heeg 2011), which I will discuss in more detail later in this chapter. Along with this trend towards neoliberalism, the escalating pace of technological, economic, and social change makes it increasingly difficult to justify commitments of public resources that could serve to limit the choices available to future generation (Lemer 1996). While predicting the course of technological innovation, regulatory changes, and other factors that contribute to obsolescence is difficult if not impossible, we can design with flexibility in mind. As business and real estate cycles wax and wane, flexible environments can help transform the negative impacts of obsolescence into positive.

## **URBAN LAND VALUE**

Real estate value is paramount to understanding tensions that arise with waterfront development. “The major fault line in urban development politics is between exchange value and use value” (Brown 2009, 120). Maritime interests might argue that waterfront land has both in ways that other properties do not. Romantic notions of maritime resurgence aside, holding a ‘call option’ for maritime water-dependent use has merit in its own right.

In the financial sense, the call option gives the holder the right, without obligation, to purchase a given number of shares of a stock at a stated price before a certain date. After the specified date if the option is not exercised, it is given up. In the same way, the land holds value in the option it gives the owner (or city or community) to develop in a given manner. After it is sold for a specific purpose or development, the option for another use is forsaken.

For example, say a firm owns several waterfront parcels, uses the warehouses on them for staging and distribution, then ships goods out by barge. The firm also owns a few dozen acres of adjacent land that is not needed for their operations, which at present lie vacant. They then decide to sell to the highest bidder since they presently have no use for the land and do not see their operations expanding in the near future. A developer who wishes to build condominiums is able to obtain a variance and buys the land to convert the area into a residential district. This then ends the option for the distribution firm to expand in its current location. If there is a shift in business trends and their need for moorage expands, they cannot do it here; the option has been relinquished. This scenario also limits the ability of the site to be used for water-related services in general because infrastructure has been put in place for pedestrian mobility; a new seawall and promenade is fundamentally different than the piers required for movement of goods and the investment put in place to build it has been irreversibly committed. Without bias, giving over to non-water-dependent uses reduces future development options for water-dependent needs.

Municipalities and port authorities are often in a propitious position to land bank abandoned waterfront properties if they see a value in the future that does not exist in the present. In such cases, the efficacious temporary use of the site is crucial. An intentionally vacant property in a neighborhood badly needing economic development is a tough sell. The call option then is only as valid as the opportunity cost in the future, or land that is held to secure the option. If the land lies vacant for an envisioned future that never arrives, causes blight and the bulkheads decay to the point of ruin, the marginal use may surmount the land bank option from both an economic and urban design point of view. The city of Gloucester, Massachusetts has set aside land dedicated to water-dependent activity in the hopes of a resurgence of the fishing industry, their historic economic base (Terkla 1994). Because there is no demand for these parcels for their allowable zoned uses, some have remained vacant for over thirty years (Gilson 2009). If these parcels were zoned to allow for other uses, the city may have a better chance at economic development here. The opportunity cost--the benefit that could have been gained by an alternative use at any point in time, whether ephemeral or lasting, is important to consider. Therefore the compromise must be in flexible design and careful planning for decisions to be made both by present and future decision-makers.

## **HIGHEST AND BEST USE—CAUTION AT THE WATERFRONT**

From a purely laissez-faire standpoint, the urban land market dictates that the highest and best use will occur on a given parcel of land. As land values increase, displaced businesses will slide along the rent gradient, moving to cheaper land further from the center, in this case the center being the waterfront (see *Figure 4: Bid-Rent Function at Brooklyn Waterfront*). The highest and best use principle governed by the free market concludes that a given site will be used in the way that is most productive for that location. There are several reasons this theory does not necessarily apply to the waterfront and is not categorically advantageous to adhere to. The free market is inefficient in supplying benefits that do not maximize profit or in some cases do not have a monetary value. I will further discuss collective societal benefits, intergeneration benefits, human and environmental health in chapter six.

The waterfront is endowed with natural features and has an accretion of systems that make it best suited to activities that *need* those features and conditions. Marine industries are relatively inflexible in their site requirements. Access to the water is limited to a thin edge that cannot be recreated in other parts of the city. Neither can these uses build upward to take vertical advantage of a smaller footprint as housing, commercial, or most land-based uses can. For water-dependent industry, water-based recreation, water transportation or access thereto, location is paramount.

In addition to the limited supply of shoreline land, another concern with the highest and best use model is that marine industrial uses would presumably move to locations where land is cheaper, that being undeveloped land on the periphery. These lands are often designated as conservation areas, public parklands, consist of special habitats, or are otherwise not appropriate for invasion of urban industrial uses. For this reason many states and towns have policies to contain urban development within a metropolitan zone. Furthermore, marine industries were often sited because of natural features that made that location particularly suited to that activity, such as deep-water channels and protected harbors, which are not replicable even at other waterfront locations.

A third concern with allowing the highest and best to use dictate development at the waterfront is that maritime uses support larger economies. The dry docks, repair facilities, tug and barge operations though not high profile, high revenue, or high employers numerically, are essential to a successful port. If these smaller industries are supporting a major container port in close proximity, one must keep in mind that though they may not offer tremendous profit or tax revenue in and of themselves, they are directly tied to a larger sector that does.

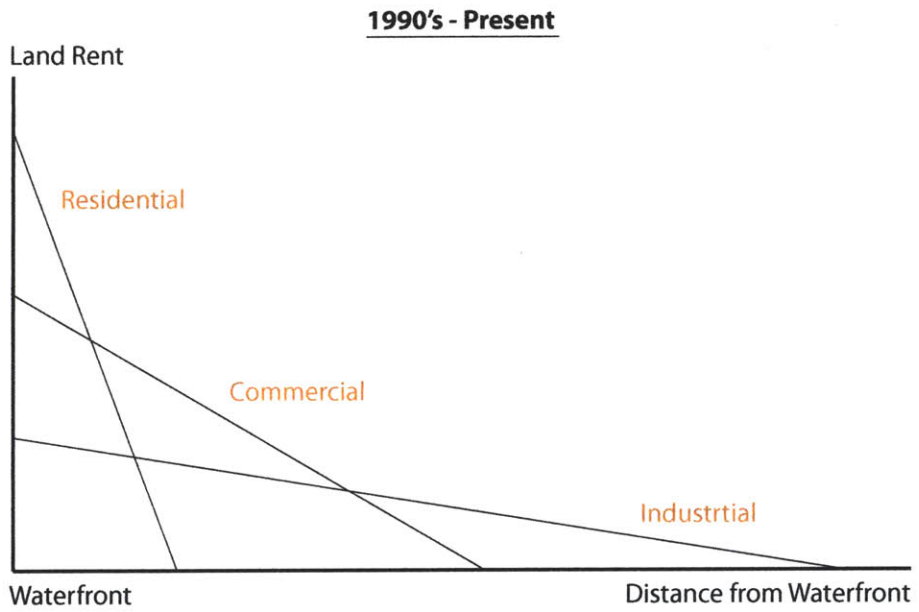
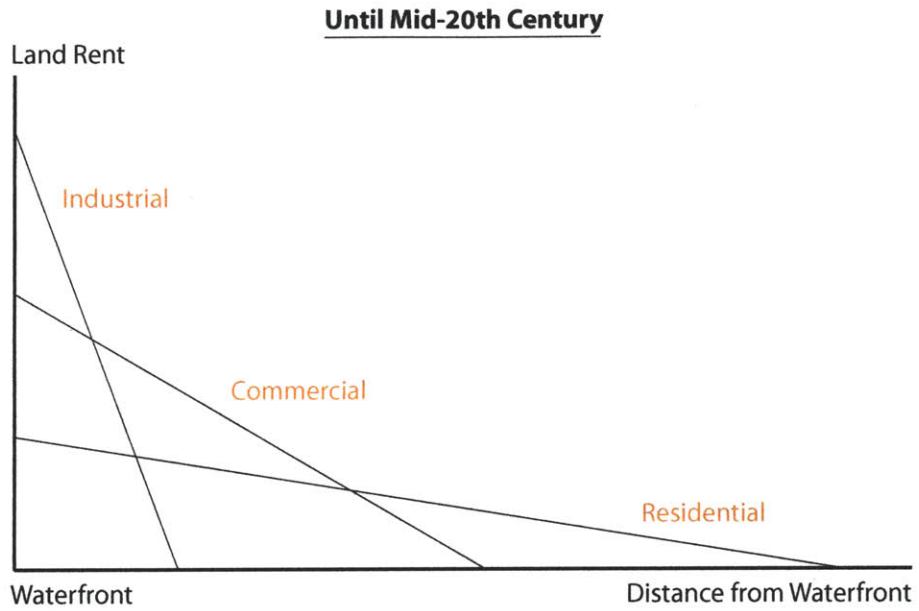


Figure 4: Bid-Rent Function at the Brooklyn Waterfront

## **MARKET VERSUS USAGE VALUE**

Thus the core of the conflict with various actors vying for waterfront land lies between the interest in developing land to its highest and best use, considering its market value, versus its usage value. The idea of market (or exchange) value versus usage (or inherent) value is central to real estate theory and has particular relevance to waterfront property. Market value is “the expected price at which the asset can be sold in the current property market” (Geltner 2007, 265). It is the most likely price at which a transaction would occur prior to the actual execution of it. Market price is an expectation of value, the mean of the probability distribution of likely prices. The market value reflects the opportunity cost or opportunity value of the property in the market and is the same regardless of one’s interest in the property.

Conversely, usage value (or inherent value) is “the value of an object to a given owner or user of the object, in the absence of any consideration of the market value or exchange value of the object. Inherent value represents the maximum amount a given person would be willing to pay for a good *if he had to*” (Geltner 2007, 286). It represents the value a specific property has to a specific user or owner rather than to the market in general. A fish cannery has a usage value corresponding to the way the structure, location, and interior were all designed with the specific purpose of canning fish. When the cannery is no longer fulfilling an economic need and no longer has economic life as a cannery, its usage value is low. However its market value could be quite high if the structure is in a desirable area, is rezoned for residential, there is a need for housing, and could be razed or retrofitted to suit current demand.

## **CLAIMS TO THE WATERFRONT**

On the waterfront, a property’s market value is a product of demand for development and its usage value is a product of politics, societal values, local culture, and current ownership. As I have described, there are underlying principles of the free market that make waterfront land exceptionally contestable. These factors underlie the motivations by varying interests groups that have a claim to it. Public officials’ push for development is driven by various desires such as shaping the image of decay into one of growth, increasing safety by reducing vacancy, marketing a neighborhood with a new identity, and bolstering the tax base by the introduction of a productive use. Private developers have their motivation for development, as their business is to profit, but this is eclipsed by the market’s demand for the project; without sufficient demand, the project has no reason for moving forward. Residents also have their idea of land value based on need for local employment, access to waterfront public space, local culture and identity, and threat of gentrification. A host of non-profit groups have interests based on the way they use the water recreationally or culturally and thus their concerns often lie in water quality,

access, or historic preservation. Conflict at the waterfront usually has direct correlation to age, size, and proximity of adjacent neighborhoods as well as strength and influence of interested non-profit groups (Brown 2009). As we will see in the case study, Brooklyn has a great intensity of each and every claim.

## MANUFACTURING

Manufacturing that is not in and of itself water-related has a historic claim to this edge land because it was sited here for its proximity to networked industries and water transport. Now these waterfront districts have some of the largest agglomerations of industries that are linked in ways that would not reemerge were they to relocate to peripheral locations. The manufacturing that takes place within the city still contributes to a diversified economy and long-term stability (Lewis 2011). Waterfront districts in many cases are some of the only manufacturing zones left in a city, leaving limited options for industries of all types that are relegated to this zoning designation.

## MARITIME

Maritime interests have been a common cause of competition and obstruction to implementing non-traditional and non-maritime plans for waterfront land. As cargo volume via traditional break-bulk ports declined drastically over the last half century, revenue dwindled and waterfront property fell into decay, leaving much underutilized land. Maritime businesses, labor unions, and liberal politician fought hard to retain land for future maritime use with the argument that committing the land to other uses would cause unnecessary further decline in the cargo businesses. Allocating land for other uses not only precludes growth potential of marine industries, but reduces flexibility of future uses in general. The idea of irreplaceability arises—deep-water berths, rail access, and pier structures, once relinquished are irreplaceable for all intents and purposes because they are cost-prohibitive to rebuild and are limited as to possible locations, even other waterfront sites. Once given over to other types of development, the edge will in all likelihood not be returned to maritime use and therefore cannot be judged purely on its current market value.

Waterfront land from the perspective of maritime interests has both exchange and usage value to be realized in the future, in the event that maritime industries see a resurgence. And they certainly have in the last decade as we shall see. In many cases where urban land is quite valuable, maritime interests are not the highest and best use nor do they generate the revenue as such. Yet maritime interests have perhaps the strongest claim to the shore, as it is their very reason for existence. Undoubtedly, the activities of the port do not need the vast stretch of urban waterfront they once did but at the same time, it is the only place some uses can feasibly operate. Planning for uncertainty should then strike

a balance between giving up an irreplaceable resource and making productive use out of valuable urban land.

## MOBILITY

Urban waterfronts have historically been valuable for the mobility and protection they enabled both in water and on adjacent land. Mobility on the waterfront now underlies much of the conflict that exists and has far-reaching implications for future flexibility. Urban ports were sited in deep harbors to allow adequate depth for passage and convenient berthing for deep-draft vessels. These deep, protected harbors also allowed safe moorage from the elements. Flat shorelines proved advantageous for constructing canals inland and railway corridor alignments. In the twentieth century, shorelines became road corridors and by mid-century, many gave rise to limited access highways, again because of their flat topography and savings in alignment costs (though not in environmental mitigation), as well as ease with which to engineer. This arrangement of roads and railways also enabled for convenient connection between water and land based travel. Concurrently, roads, railways, and port infrastructure became a barrier between inland neighborhoods and the waterfront. Access to the waterfront was blocked by the function and size of industrial parcels as well as continuous linear transportation corridors. Inherent in development of the waterfront, mobility is a theme that is inevitable in transformation. "...the conflicts that emerge during waterfront redevelopment are not merely those between incompatible land uses, but rather between incompatible mobilities as well" (Ramsey 2009, 102).

The industrial waterfront of the last century was configured with one chief purpose: to load and unload cargo efficiently. With the exodus of break-bulk cargo, much of remaining waterfront industry is not dependent as it once was on the swift movement of goods. Present demands for redevelopment require views of the water, wide sidewalks for strolling pedestrians, bike lanes, and bridges or crossings over railways and roadways. The existing industrial infrastructure does not necessarily support these functions. Reconfiguring of infrastructure means not only change in how land is used, but adaptation to new social and economic conditions while relinquishing old ones.

The restructuring of mobility is at the core of conflict between industrial retention and redevelopment by way of what it enables and evokes. For example, there is currently a debate in Seattle over what to do with the Alaskan Way Viaduct, an aging elevated highway along the downtown waterfront. This piece of mid-century infrastructure is beyond repair and needs to be rebuilt entirely or replaced with a new system--a tunnel or surface road.

To some, the limited-access highway should be eliminated altogether. A progressive city recognizes the value of the waterfront for pedestrian public space, cultural production,

and quality of urban life; the modernist ideal is obsolete and highways have no place on the urban waterfront. Yet to another group who cannot afford to live in the city and for those who make a living driving trucks inland from the port, removing the highway means obstructing essential access to and from downtown and the port. A pedestrian promenade does not serve the whole city and its diverse needs but caters to those wealthy urbanites with leisure time. To remove the highway would be an assault on the working class whose very livelihood depends on its existence. Situations like this reveal how mobility at the waterfront has deep-seated complexities. The decision over what is removed or built is indicative of the city's values (both government and electorate) and the resulting infrastructure will not only have ramifications for future adaptability of land use, but for the trajectory of societal values in favor of some and marginalization of others. The values a city and society subscribe to and the claims that correspondingly triumph are inseparable from the development process, the method of which also reflects these values.

## **PROCESS OF DEVELOPMENT**

### **MUNICIPAL SELF-INVESTMENT**

The historic waterfront—the port and manufacturing areas, were some of the hardest hit in the city when it came to deindustrialization and subsequent dereliction. Now development seeks to adapt the industrial city to post-industrial needs (Heeg 2011). In the wake of deindustrialization, cities have used traditional economic development strategies to revitalize functionally obsolete waterfronts. These include financial incentives such as business assistance and retention programs, tax-increment financing, and small business loans financed through economic development corporations. Land-based incentives have been employed such as building density bonuses, zoning code revisions, and transfer of development rights.

Recently the trend has been to invest in civic infrastructure improvements as well as civic cultural amenities in order to attract private investment as well as state and federal funding (Kemp 2003). 'Municipal self-investment' as Roger Kemp (2003) labels this practice, is important for city officials to show their financial commitment before expecting any from the private sector or higher levels of government. Rather than a corporate welfare program, it is way for the municipality to set the stage for redevelopment. Restoring outdated infrastructure—streets and sidewalks, utilities, seawalls, and public transit lines in addition to creating open space from vacancies and allowing for mixed-use developments have served to revitalize communities' development potential. Public agencies plant seeds of change by making necessary improvements, creating amenities for those who live there and attracting more citizens back to depopulated areas. Examples of municipal self-investment are numerous but notable ones include Toronto's revision of zoning code to



include mixed-use in its waterfront or Baltimore's creation of a park and trail network to link inner neighborhoods to the harbor (Kemp 2003). These projects have tremendous impact on urban form depending on the choices made by public officials. Cities can choose to invest in an array of financial, land-based, and delivery tools that have impact on the urban fabric for generations to come. Even though we are dependent upon the private sector for development, cities can have large influence by laying strategic groundwork for desired outcomes.

#### PROPERTY-LED DEVELOPMENT

With increased reliance on public/private partnerships, investment in public infrastructure is more difficult than ever. Cities seem to have passed on much of their development self-determination to the private sector in a project-based rather than comprehensive approach to development. This is due to the rise of neoliberal thought—privatization, reduced public expenditure on social services, and reduced responsibility of government. Susanne Heeg (2009) summarizes David Harvey's theory concerning shift in city governance from managerialism to entrepreneurialism; entrepreneurialism is more concerned with the mobilizing of local resources in a deregulated competitive market than with the provision of public welfare, which was the case with managerialism (Harvey 1989). "The role of the public sector is reduced to facilitation of the functioning of the real estate market" (Heeg 2009, 276).

A corollary to the aforementioned municipal self-investment is property-led development. In an increasingly deregulated and globally-oriented market, cities have less autonomy in shaping their future. Current trends show increased concessions to developers such that in order to achieve the goals of the city's urban development strategy, cities align their interests with those of real estate developers. For better or worse, policymakers have viewed real estate development as the primary tool for solving social problems, unemployment, blight, and inducing economic growth. Private real estate interests are thus enhanced and incorporated into the municipal planning process. The dominant theory says that "a shift has taken place towards a more flexible, liberal, less regulated planning, in order to stimulate economic growth and innovation" (Heeg 2011, 278).

This flexible planning policy does not necessarily result in flexible urban environments. In the property-led development model, the urban waterfront is increasingly tied to economic cycles and associated flows of capital. This mode of operation inherently means instability in the flow of capital into the built environment. During economic downturns, investment is withheld and projects are halted because of lack of capital and lack of demand. On the other hand, during economic boom times, overinvestment ensues. Luxury housing and office space generally prevail as they are the most profitable despite the fact that affordable

housing and employment are the most pressing needs during these times. Well-founded design principles and thoughtful development along the waterfront can easily be eclipsed by the volatility of business and real estate cycles. Property-led development though achieving increased tax revenue for the city, does not always lead to long-term socially and economically optimal outcomes. Let us look at an example from South Boston.

### **A CASE IN SOUTH BOSTON**

In the 1990's real estate boom, much of the derelict land in South Boston's waterfront district became highly desirable. Planning objectives were drafted in order to guide development that would result in a vibrant neighborhood, the last large area of developable land in close proximity to downtown. The plan drafted by professional planners and architects called for ten to fifteen thousand residential units in the area of redevelopment in order to achieve the minimum density that would support restaurants, shops, and public transit in the new neighborhood. At the time in 1998, the office real estate market was booming and most of the proposals by developers and landowners were geared toward office space.

When the market exists for it, office developments can be far more lucrative than residential. Accordingly, the city's official required number of residential units kept falling—to eight thousand, then six thousand as developers continued to submit proposals for office buildings. By 2005, less than three thousand residential units had been built and calculations showed that with all the developments that had been put in place, the district could only fit one thousand more units. In 2008, more negotiations took place between developers and the city, resulting in additional office space in the district, which was already 85 percent office. During the same period, between 2000 and 2008, three hundred artists were displaced from their warehouse studios in the South Boston waterfront. Some of the units were converted into condominiums, but most became more office space (Heeg 2011). As of 2010, Boston's office real estate market had a vacancy rate of over fifteen percent (Richards 2010) while the residential rental market hovered around five percent the same year (Bluestone 2010).

Clearly, there is a disconnect between the importance of the larger planning goals and ability to circumvent them. Not only was the neighborhood at a disadvantage to begin with by not having enough residential units appropriate for a CBD adjacent environment, it now has high vacancy rates because uncertainty in the office market was not considered. The city will now have put extraordinary effort into correcting the situation. Planning for change and uncertainty should consider both the short and long term of potential demand as well as the quality of life issues that the land use decisions will dictate. As we begin to examine the case study of New York in the next section, we will look at various scenarios in which planning decisions led to divergent outcomes, flexible and inflexible.

### 3. WATERFRONT PLANNING: NEW YORK CONTEXT

Developing the waterfront is an arduous process compared with the water-free inland parts of the city. Permits are required from a variety of agencies at all levels of government, which creates a relentless challenge even for developers (Bartolomeo 2011). Before delving into the case study, it is important to understand the context in which waterfront development takes place. New York City is subject to a plethora of documents and regulations that inform the trajectory of development along the water. Many of these are relatively recent and came out of responses to environmental and social concerns that surfaced as industrial land was first opening up for redevelopment. At the national level, numerous acts of congress have influenced development of the shoreline, primarily for protection of environmental resources and navigable waterways. At the state level, the New York State Department of Environmental Conservation prescribes regulations that aim to protect water quality and coastal resources. *Figure 5: Waterfront Permitting in New York* outlines the three levels of government agencies involved in permitting for a development project on the waterfront. *Figure 6: Actors Involved in Brooklyn Waterfront Planning* diagrams the network of public, private, and non-profit entities that influence waterfront development to varying degrees. In the following section I will focus on the municipal level policies that directly and strongly influence urban development along the shore.

#### **WATERFRONT REVITALIZATION PROGRAM**

The *New York City Waterfront Revitalization Program* (WRP), first enacted in 1982 is the city's overarching tool for coastal zone management. Its primary purpose is to provide a framework for evaluating the consistency of discretionary actions on an individual project basis and to coordinate when there are overlapping documents and jurisdictional regulations. "The guiding principle of the WRP is to maximize the benefits derived from economic development, environmental preservation, and public use of the waterfront, while minimizing the conflicts among these objectives" (DCP 2002, 6).

#### **WATERFRONT ZONING TEXT**

Public access to the water is a paramount issue for communities generally deprived of open space and historically separated from the waterfront for recreation for reasons previously mentioned. Waterfront zoning regulations were enacted in 1993 at a time when sweeping changes were occurring in development trends along the water. Former industrial parcels were being purchased en masse by real estate developers for residential and commercial construction. The land being formerly industrial, there were no historical precedents in the area or provisions for public access to the water, nor were there any planning mechanisms that dealt with such. The city recognized that in addition to the necessity of

a comprehensive waterfront plan, waterfront parcels with their potential for recreation and open space should also be subject to specific zoning regulations. With these in place, a system was codified for development along the water to ensure the existing communities were not walled-off from their own shoreline. The zoning text required new residential and commercial developments on waterfront lots to adhere to an appropriate contextual scale by controlling height and bulk of structures, to provide both physical and visual access to the water for adjacent communities, and made the allowance for floating structures for the first time. Since 1993, 1,250 acres of waterfront land have been acquired and/or transformed into public parkland (DCP 2011). Three hundred twenty-two acres of this are in Brooklyn, ten of which comprise the new Brooklyn Bridge Park, which opened in 2010.

In spite of laudable improvements, waterfront zoning has its critics. The fundamental idea of this mechanism was based on the notion of public/private partnership to allow for public parkland rather than public funding for parks, as had been the mechanism for public open space in the past. Opposition from adjacent communities springs mainly against the oft-built high-rise towers along the shore, for which some blame waterfront zoning as enabler. Not only do they disapprove of the height, the sheer number of potential residents strains already crowded subway lines and the high-priced units drive up land values, threatening to displace long time residents. This urban form is the product of a policy that favors highest and best use of the land so is from that angle inevitable. Advocates for parks, promoters of environmental justice, and opponents to towers see the public waterfront connected with high-rise condominiums as more of a linear front yard than true public open space and find a fundamental flaw in the in the mechanism of private development of public waterfront parks.

Professor Tom Angotti in the Hunter College Department of Urban Affairs & Planning contends that waterfront access is not adequately addressed within the city's zoning text. There is no guarantee that the required 'public' space will not in practice become privatized space. "Waterfront zoning deals with public access as a strictly physical matter, not integrated with the more complex planning that is related to the function of streets and pathways, transportation, and different modes" (Angotti 2011). Even if there is a spacious fifteen-foot promenade, there is no mention of public transit connections or of how the space will be programmed.

Because of these concerns voiced previously, the city amended the waterfront zoning text in 2009 to ensure that physical design provides a welcoming space. Three of the seven major goals include: "ensure that waterfront public access areas are inviting to the public, ensure uninterrupted waterfront access that is clearly open to the public, activate waterfront spaces by improving connections between the water's edge and the upland streets" (DCP

**Federal**

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**U.S. Army Corps of Engineers**

- ... Rivers and Harbors Appropriation Act 'Section 10' permit
- ... Clean Water Act 'Section 404' Permit
- ... Clean Water Act 'Section 401' Water Quality Certificate

**National Environmental Policy Act**

**United States Fish and Wildlife Service & National Marine Fisheries Service**

- ... Federal Endangered Species Act

**Resource Conservation and Recovery Act**

**Marine Protection, Research, and Sanctuaries Act**

**State**

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**New York State Department of Environmental Conservation [NYSDEC]**

- ... Protection of Waters Program And Permits
- ... Tidal Wetlands Program and Permits
- ... Clean Water Act 401 Water Quality Certificates
- ... State Environmental Quality Review Program
- ... Freshwater Wetland Program and Permits
- ... Resource Conservation and Recovery Act

**New York State Department of State**

- ... Coastal Zone Management Program Consistency Determination

**New York State Office of General Services**

**Municipal**

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**New York City Dept of City Planning**

- ... New York City Zoning
- ... NYC Local Waterfront Revitalization Program
- ... City Environmental Quality Review

**NYC Department of Environmental Protection**

**NYC Department of Small Business Services**

**New York City Landmarks Preservation Commission**

**NYC Department of Buildings**

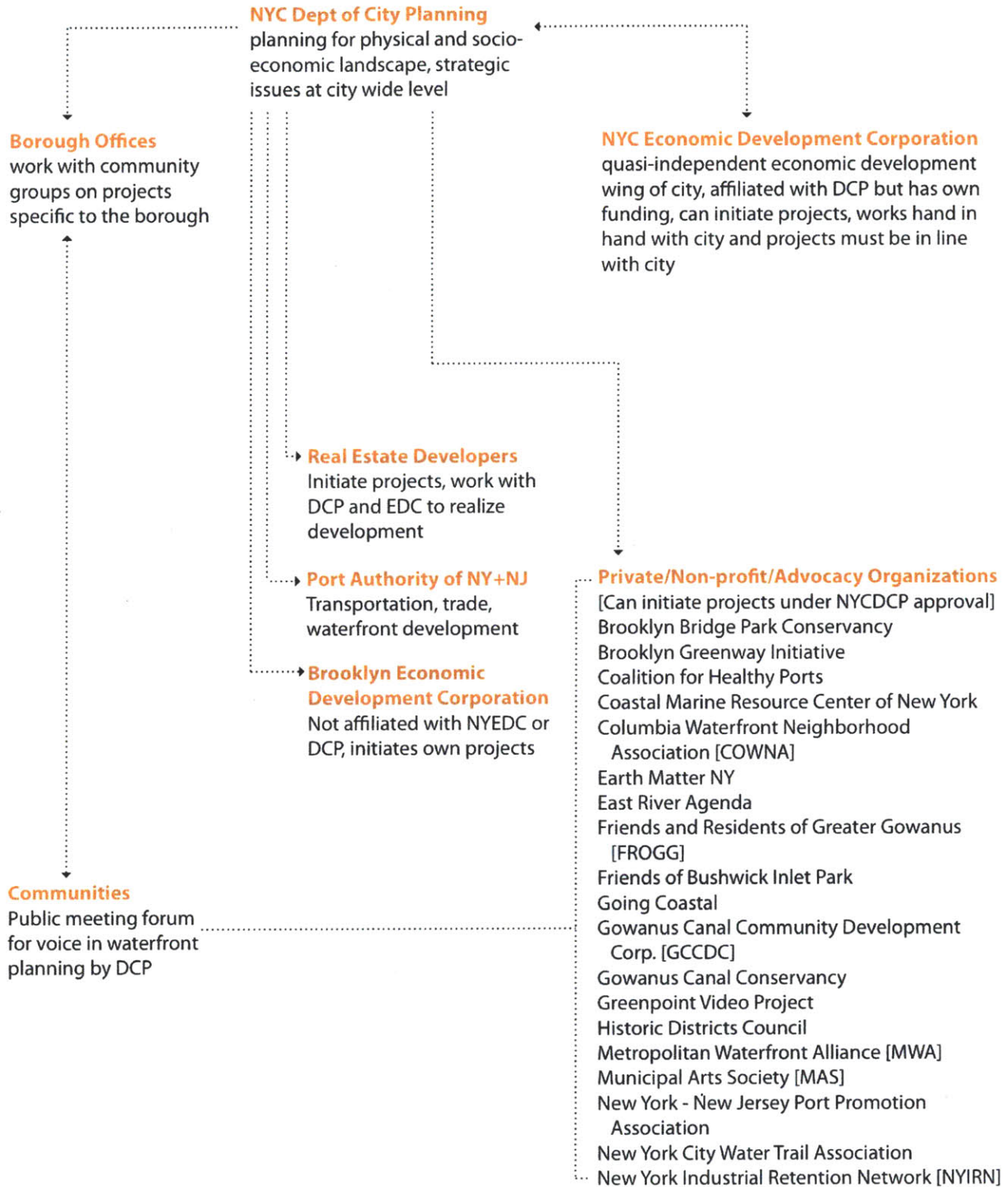


Figure 6: Actors Involved in Brooklyn Waterfront Planning

WFT 2011). Clearly there was room for improvement, which the city has now addressed and this may quell some of the critics' concerns. Still, some of the functional issues were not discussed and the amendment omits what is viewed as the root of the problem: private provision of public space.

Other critiques point to the generic yet rigid nature of the zoning designations that miss the nuanced reality of land uses. For example, food manufacturing, apparel, and printing are no longer noxious activities. Waste transfer stations, disposal, and sewer services certainly are, but fall into the same category as those non-nuisance industries. Furthermore, new economy sectors such as biotech, media, telecommunications, and eco-industry are of ambiguous zoning designation and the code overlooks this issue entirely (Pratt 2001).

### **WATERFRONT ACCESS PLANS**

*Waterfront Access Plans* (WAP) are zoning instruments that tailor public access requirements to specific conditions of a district or site, are used to ensure "continuity of shorefront public walkways developed over time by multiple property owners" (DCP 2011, 12). The City Planning Commission and City Council may adopt a WAP to adapt to specific conditions of a given district. Where zoning text and WPR objectives overlap, the policies refer to the zoning (DCP 2002). The brilliance of the WAP is in its intention to bridge time and space to eventually form a contiguous walkway. Critics of the WAPs note their absence in mixed-use and manufacturing zones (Pratt 2001), which is a severe omission when large contiguous portions of Brooklyn's waterfront fall into these zones.

### **COMMUNITY 197-A PLANS**

Community-based plans, colloquially called 197-a after the section of the City Charter that created them, are a forum for community participation by those who are most impacted by change. Any organization such as a community group or non-profit may draft a plan but it then must be approved and submitted by a borough board, borough president, city planning commission or other municipal body with appropriate authority. The intent of the 197-a program is to help communities become more involved in the planning process and thus have the goals of both the city and community more in alignment. However, 197-a plans do not have the law behind them and are only advisory in nature. Once a 197-a plan is approved by city council "The adopted plan serves as a guide for subsequent actions by city agencies" (DCP 1997, 6). They are not subject to the same enforcement as other planning documents initiated by the city and recommendations within them do not necessarily go into effect simply because the plan is approved (NYU 2010). For this reason, critics of the 197-a process are many, also noting that the plans are expensive to develop, involve a burdensome process, and ultimately the city will do what it wants regardless of the goals set forth in the 197-a plan.

## **THE COMPREHENSIVE WATERFRONT PLAN**

Some argue that *The New York City Comprehensive Waterfront Plan*, issued in 1992 was long overdue. Piecemeal development was already the norm, illegal residential conversions and construction rampant, and discord between new residents and existing industry explosive. Decades had passed from the time of industrial abandonment and the New York City in general and Brooklyn in particular were much in need of some guidelines before the entire shoreline was built up with unplanned, dissonant, and inequitable land development. The 1992 Waterfront Plan was the first time a long-range vision was offered for the entire city and the 'reaches,' or specific stretches of waterfront in each borough. As the first official recognition that the waterfront was a unique part of the city and should be treated as such, "The plan capitalizes on the size and diversity of the city's waterfront to address the historic competition between commerce and recreation for use of waterfront land" (DCP1992). With four categories: *the Natural Waterfront*, *the Public Waterfront*, *the Working Waterfront*, and *the Redeveloping Waterfront*, and a fifth added in the updated 2011 Comprehensive Waterfront Plan *Vision 2020*, *the Blue Network*, based on tremendously improved water quality, the plan "proposed ways to reinvent the shoreline for public access and productive uses" (DCP 2011, 6).

*Vision 2020* was created in the recognition that much has changed in nearly two decades since the original plan. One great shift has been the focus on the working waterfront. In the early 1990's the city's maritime industry was shrinking, whereas today there has been a resurgence in trade and the City wants to continue to see it grow by recognizing the importance of the maritime support services (Marrella 2011). Along with *Vision 2020*, the City concurrently released the *New York City Waterfront Action Agenda*, which outlines key projects that catalyze investment on the waterfront. This constitutes the city's near-term vision.

All in all, the city has recently been quite thoughtful in planning for the waterfront but it is always a work in progress. As new mechanisms are invented to allow for more adaptable environments, the waterfront, always fluid, is sure to retaliate with new challenges. All of the aforementioned documents and policies have influenced the stories that played out in some of Brooklyn's historic waterfront neighborhoods. In the next section I will investigate two that have been particularly sensational.





## 4. CASE STUDY: BROOKLYN

Brooklyn, New York has all of the elements and drama of a contemporary urban waterfront. From oil tanks to wetlands to glass and steel towers, if there is any place that literally has it all, that is Brooklyn. Industry has been concentrated along the northwest from Newtown Creek, all the way around to the Gowanus Canal, and south through Sunset Park. Historically, these areas hosted one of the most productive, densest concentrations of maritime industrial activity in the world. Dutch settlers arrived in the 1600's and proceeded to develop Greenpoint, Williamsburg, the Navy Yard, Fulton Ferry, Brooklyn Heights, then Red Hook as areas of manufacturing and shipping along with associated piers and warehouses (see *Figure 7: Brooklyn Neighborhoods Map*).

### HISTORY OF TWO NEIGHBORHOODS

In this section I will look specifically at Greenpoint-Williamsburg and Red Hook because they have recently experienced different styles of development with dramatically divergent outcomes. In the 1850's, New York was extremely prosperous and copious amounts of immigrants saturated the island of Manhattan. Much of the shipping was displaced to Brooklyn and Greenpoint began to grow into a world-class shipbuilding center. Neighboring Williamsburg then took on heavy industries such as sugar refining and oil storage, some of which are still in use (Ziesemann 1998). Over to the west, Red Hook was one of the first Dutch settlements of New Amsterdam in 1636. By the 1800's, Red Hook had also become a preeminent shipping and warehousing terminal. The prosperity of the waterfront districts provided the income and security for adjacent residential districts to thrive.

The mid-twentieth century brought sweeping changes both spatially and economically. Plans for the Brooklyn-Queens and Gowanus expressways began as early as the 1930's and these were completed throughout the 1950's-1960's. First the planning process, then the expressways themselves had detrimental impact on the neighborhoods. To bitter protest, the expressways were built and immediately separated inland neighborhoods from their associated waterfronts; physical, economic, and psychological connections were painfully severed. At the same time, the container revolution sent much of the shipping industry to the modern port in New Jersey, contributing further to disinvestment in Brooklyn's historic shipping districts. Vacant land and underutilized buildings became commonplace and although much industry managed to survive, the prevailing attitude has been that 'industry is dead' (Wolf-Powers 2003, 40).

For a comparison of land use in Williamsburg between 1969 (data from Sanborn Fire Insurance) and 2004 (data from Bytes of New York GIS database), See *Figure 8: Williamsburg Land Use 1969* and *Figure 9: Williamsburg Land Use 2004*.

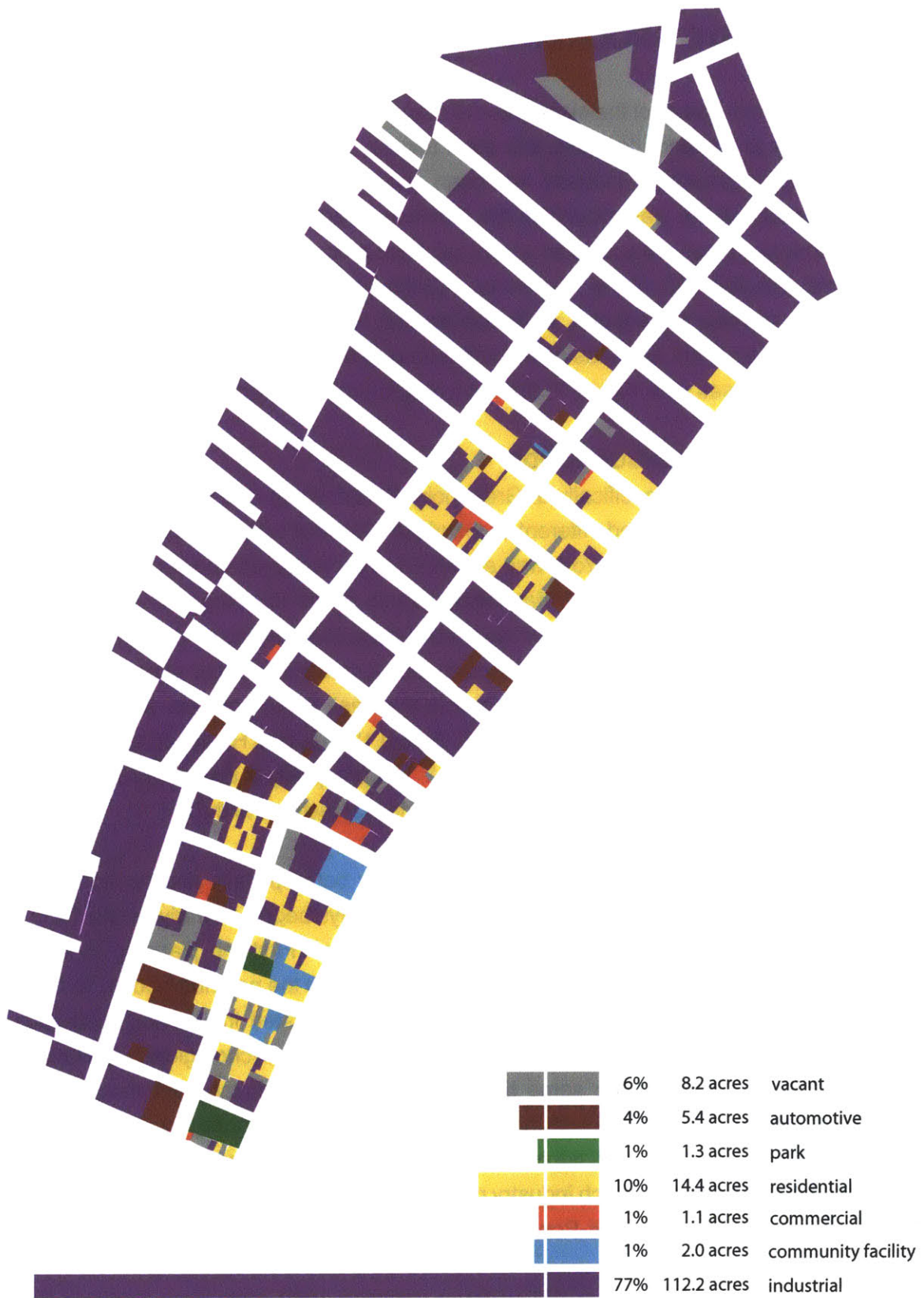


Figure 8: Williamsburg Land Use 1969

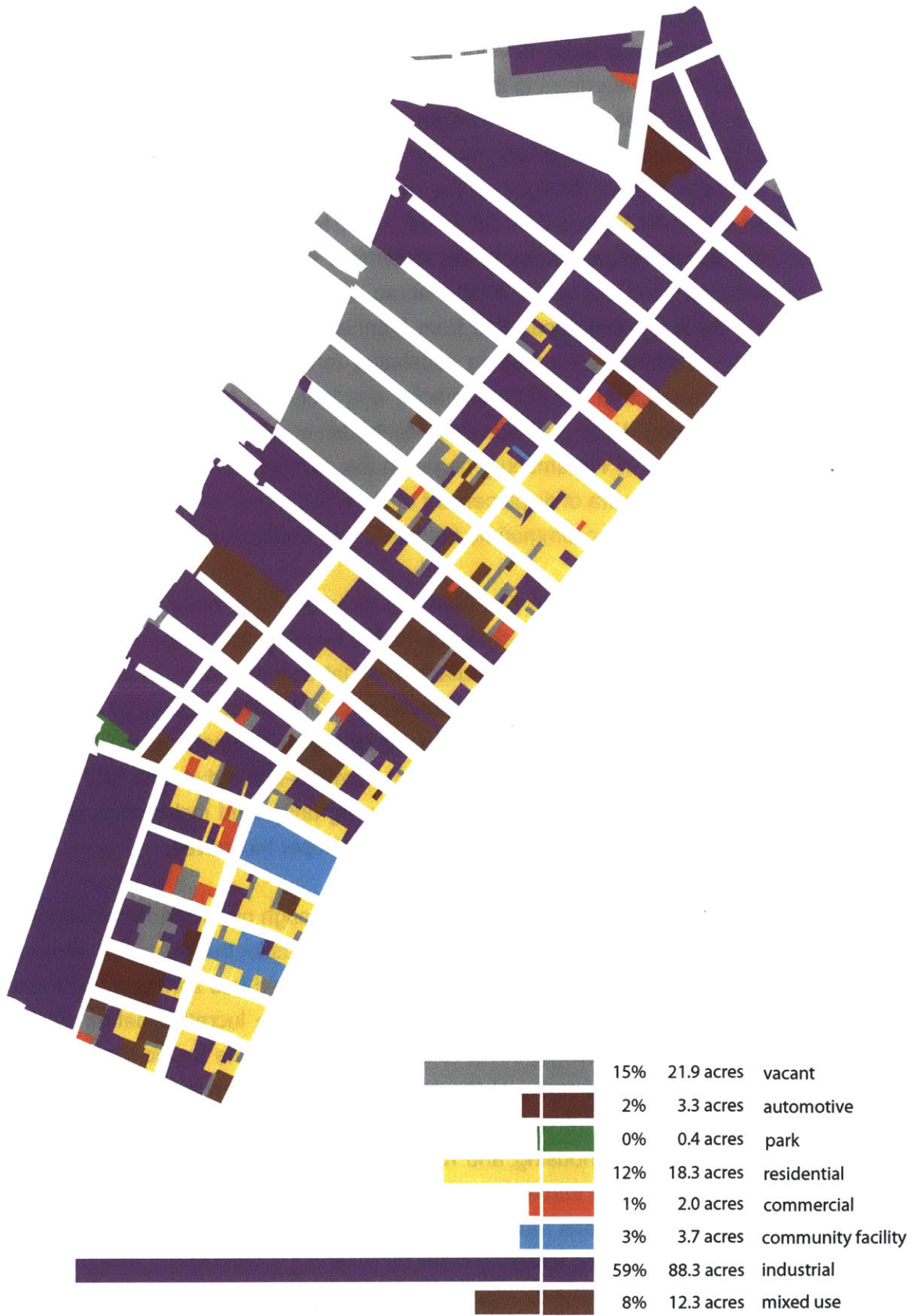


Figure 9: Williamsburg Land Use 2004

## **PLANS FOR REDEVELOPMENT IN GREENPOINT-WILLIAMSBURG**

Greenpoint and Williamsburg each developed their own 197-a plans in response to changing needs along the waterfront in the mid 1990's. Though each was derived from different concerns, both understood the need for a blueprint for future development. In Greenpoint, the plan stemmed from community activism against siting of undesirable facilities, such as waste transfer stations on the waterfront. The neighborhood had dealt with extreme environmental degradation and pollution, and felt that residential development would better connect the neighborhood to the waterfront and would be a sensible way to provide access and open space. In Williamsburg, industrial retention was valued to a higher degree. As it is more accessible from Manhattan, it had been the repository of artists and light-manufacturers escaping escalating rents. Both new and long-time residents placed importance in the gritty character and industrial aesthetic that created value for the neighborhood. With this influx from Manhattan and the increasing desirability of the neighborhood, rents in Williamsburg began to rise as well. Existing residents and businesses felt a menacing aura of displacement and wanted a clear plan to address their neighborhood's future to best accommodate new uses and populations.

The two neighborhoods were able to find common ground on the need for more open space, access to the water, contextual style, affordable housing, and preservation of the harmony between residential and light manufacturing that defined them. In 2002, 197-a plans were adopted by City Council but there proved to be little follow-up by city agencies until 2003. Then came a rezoning proposal for Greenpoint-Williamsburg, which would mean the conversion of 350 acres of industrial land to mixed-use. Advocates of the plan cited creation of thousands of jobs, 10,000 new housing units, and inclusionary zoning provisions for 15-25 percent affordable housing with developer incentives.

Critics however argued that the proposal did not provide enough open space considering the population growth that would ensue, urban design standards for the waterfront allowed up to 350-foot towers that could wall off the neighborhood, mixed-use zoning would force manufacturing businesses to leave the district because of the lucrative nature of the residential market, affordable housing being voluntary would produce limited results. The proposal underwent review and many of the concerns were addressed: the alterations proposed were 54 more acres of open space, business relocation assistance, density bonus for 30 percent affordable housing, and 13 industrial blocks omitted from the rezoning plan to protect manufacturing in that area. In 2005 the rezoning was approved and since then two more supplemental plans have been proposed to limit building height in certain locations (Furman 2009). See the following maps for rezoning in Greenpoint-Williamsburg *Figure 10: Rezoning 2002 – Present*, *Figure 11 Existing Zoning 2004 (Now Former)* and *Figure 12: Proposed Zoning (Now Current)*

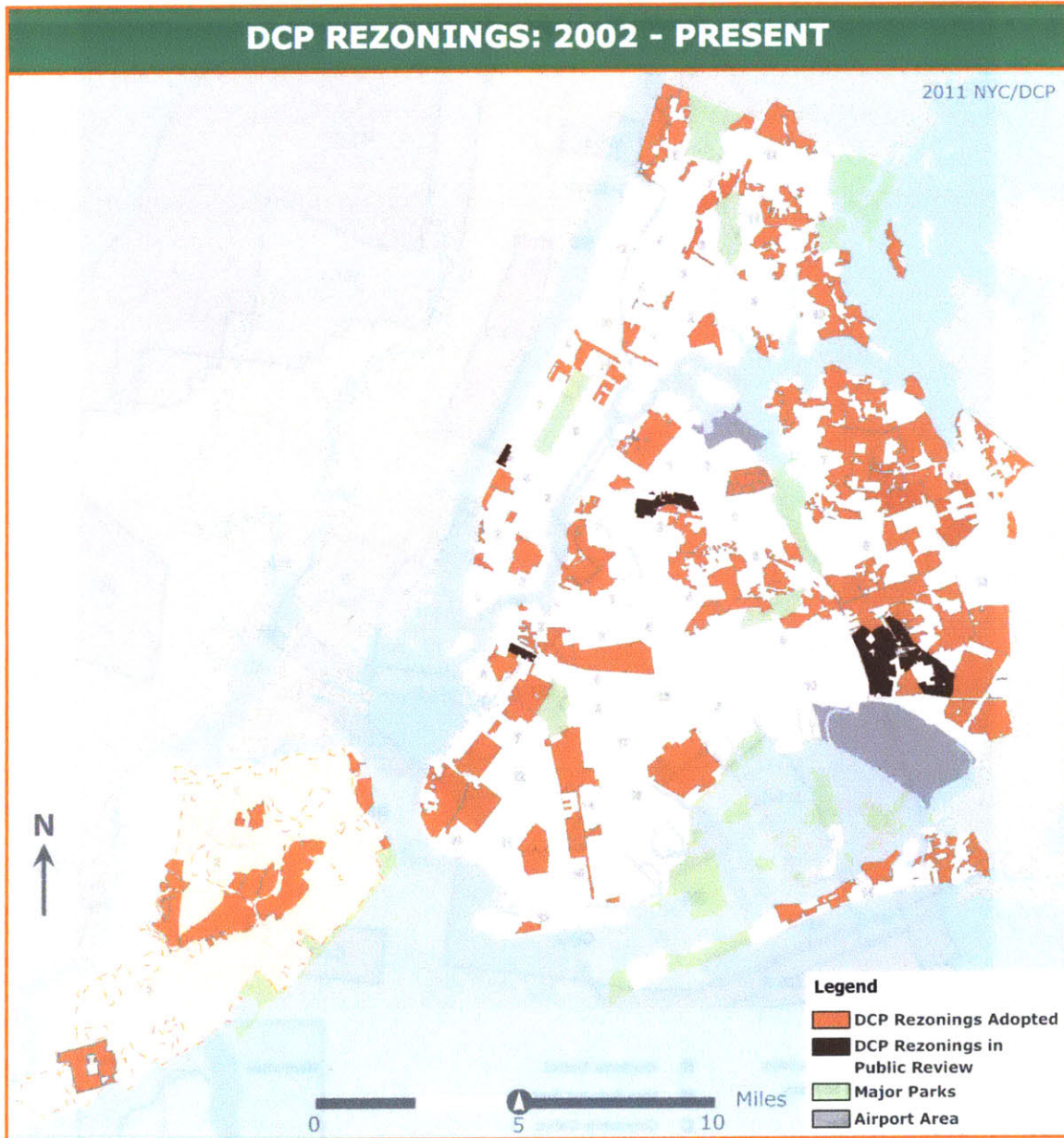


Figure 10: Rezoning 2002 -- Present  
 Source: NYC Dept. of City Planning

Greenpoint-Williamsburg Rezoning  
**Existing Zoning**

The City of New York  
 Department of City Planning  
 July 2003

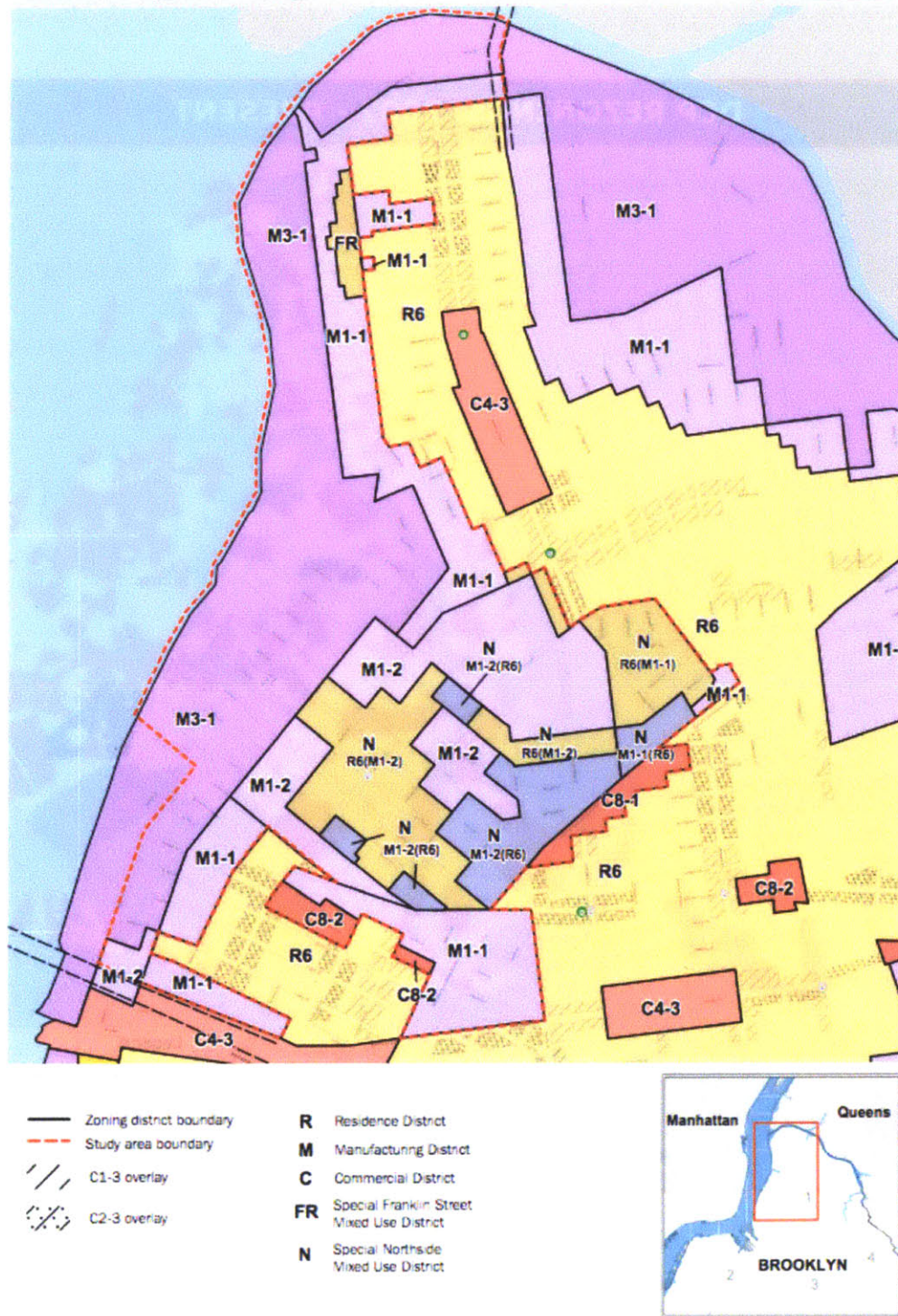


Figure 11: Existing Zoning (Now Former)  
 Source: NYC Dept. of City Planning





## **CONFLICT: RESIDENTIAL DEVELOPMENT AND INDUSTRIAL RETENTION**

The zoning designation that has sprouted up in many of the rezonings of Brooklyn, 'mixed-use,' theoretically allows for industry and ostensibly encourages it to remain in many of these areas that were formerly manufacturing zones. It diverges from the former standards in allowing property owners to convert to non-industrial uses as they please or 'as-of-right.' Allowing for residential or offices space in these zones in an increasingly desirable neighborhood, as are many of the affordable areas of Brooklyn, unquestionably opens the door for the more lucrative land uses to penetrate, pushing out manufacturers by way of increased property values and rents. New York's 1916 zoning resolution characterized areas like Greenpoint and Williamsburg as 'unrestricted' because they contained an eclectic mix; industry, houses, retail and offices for better or worse, coexisted, often side-by-side. Most of Brooklyn's waterfront operated in such a way that those who lived in adjacent neighborhoods and were employed at the nearby manufacturing and maritime industries typically walked to work (Wolf-Powers 2005).

Greenpoint and Williamsburg present classic stories of deindustrialization; neighborhoods suffering from the loss of jobs to cheaper locations and labor markets, their role in the maritime industry losing significance and leaving the neighborhood devoid of its livelihood. After a period of mass exodus and subsequent blight, the 1970's and 1980's saw a resurgence of niche market light manufacturing taking over some of the vacant factory buildings and warehouses. By the 1990's, these districts were recognized as most desirable for industrial jobs, particularly light manufacturing. Though they were more expensive than the newer, suburban style industrial parks in far reaches of the outer boroughs, they were the densest and fastest growing.

Proximity to major markets in Manhattan for clothing and textiles, craft furniture, and specialty food products was one key factor as was the eclectic lifestyle offered by these historic neighborhoods to creative class workers. Not only does the manufacturing sector benefit, but the communities themselves supported the growth of this sector (Wolf-Powers 2005). Part of the reason for proliferation of small enterprises is the existence of two distinct markets in New York. One is high-priced and directed to high-income consumers interested in high-quality, innovative, non-mass-produced goods and personalized services. The other is low-priced, directed to serving the needs of low-income workers, many of whom are immigrants and desire unique products related to their ethnic identity. Thirty-six percent of New York City's population is foreign born and this reaches nearly forty percent in Brooklyn (DCP 2004), indicating the magnitude of local demand for these unique products.

Greenpoint-Williamsburg is replete with these niche manufacturers and typified by a historic mix of manufacturing and residential side-by-side. Several of Brooklyn's community-driven 197-a plans detailed their intentions to maintain light industry with direct zoning recommendations: the *Greenpoint-Williamsburg 197-a Plan* calls to retain non-polluting industries that are located in mixed-use areas through two approaches. The first is to identify manufacturing zoned districts that are suitable for mixed-use, including manufacturing, residential, and commercial and allow them to develop as such. The second proposes identifying industrial sanctuaries with the retention of clean, non-polluting industry in manufacturing zones and continue their designation as such. This would promote employment and business opportunities for local residents (CBO 1998).

Clearly the communities felt that it was important to retain non-polluting, light manufacturing in their district. Unfortunately, the mechanisms in place have not been sufficient. A number of 'new era'<sup>7</sup> industries have found their niche in Brooklyn and have thrived, but by the 1990's the displacement of industry began to be accelerated by gentrification. Looking at the Greenpoint-Williamsburg district, in 1991 there were 7,000 industrial jobs that had clearly survived the major period of deindustrialization, but by 2002, this had shrank nearly in half to around 4,000 (DCP FEIS, 2005). This is evidently a trend based on real estate value increase in the neighborhood because the other areas of study showed stable industrial job numbers throughout the same period. The zoning in place dating from 1961 was able to effectively protect the industries from the ever-powerful Manhattan residential real estate market. However, much had changed in thirty years and when pressures came to a boiling point, illegal conversions became rampant, as were increased variances to the practiced zoning code.

Increased demand for housing is certainly an issue not to be ignored, but the placement of such needs to be strategically planned. Spaces for manufacturing require large open spaces, while conversion of these to residential breaks up these large volumes of space that are effectively irreplaceable because of cost-per-square-foot in the inner city market, of which we have discussed the importance in maintaining this geographic centrality. Residential lofts are units of consumption rather than production meaning not only a change in form, but a compromise of the economic integrity of the district. These buildings were designed and configured specifically for manufacturing, so displaced businesses are required to move to new buildings designed or adapted for that same purpose. The retention of manufacturing use in structures designed specifically for that very purpose circumvents the need for superfluous inputs from adaptation. Still this reason is not powerful enough to defend against market forces without designated tools to do so.

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<sup>7</sup> *New era* industry in the context of this research refers to those post-Fordist manufacturing sectors such as neo-artisanal products, cultural and media products, craft foods, and the eco-industry.

## **INDUSTRIAL DISPLACEMENT**

The 1992 Comprehensive Waterfront Plan found that much of the city's waterfront land and buildings were currently not fulfilling their potential to support industry. Twenty percent of land zoned for industry was vacant at that time and considerably more was found 'underutilized' in the 1993 Industry Study (DCP 1993). The plan also notes that industrial areas could accommodate greater industrial activity if investment interest existed. Reinvestment in freight transport and reduction in crime are cited as top strategies to revitalize industrial areas. Without action, events played out as predicted. In the earlier years of the Bloomberg administration, unprecedented zoning changes were employed as a mechanism to encourage development and have clearly reflected the notion that there was a surplus of manufacturing zoned land. Since 1992, seventy rezonings and 'like actions' have affected 3,000 acres of waterfront land in New York City. Brooklyn has had its fair share with nineteen of these, affecting 560 acres (DCP 2011).

Three years after the rezoning of manufacturing to mixed-use and residential in Greenpoint-Williamsburg and streamlining of permitting, just as predicted, residential development was intensely fueled. The said actions increased both housing stock and desirability to live in these neighborhoods but have greatly reduced the city's industrial stock. In 2002, New York City had 12,542 acres of land where manufacturing businesses could legally operate. Today it has fewer than 10,746 acres and if additional proposed zoning changes go forward, another 1,800 would be lost to a total of twenty percent decrease since 2002 (Pratt 2009). This scarcity and resulting increase in demand has put a strain on supply of manufacturing space and driven up cost per square foot from \$150 to \$300--a direct result of the rezoning of historically industrial neighborhoods (Kean 2008). In an otherwise depressed real estate market, this rise shows little sign of reverting. Turnover of industrial space in Greenpoint also showed a sharp drop, from twenty-two sales in 2005 down to six in 2007. Those tenants who were not displaced would face difficulty in finding equivalent space in the city if they tried to relocate. In 2006, a single story warehouse that was in a residential zone was worth far more for redevelopment. With the recognition of condo glut and inability to finance new luxury residential projects, the same property is now worth more as usable commercial or industrial space, a rare phenomenon. The trend shows clear demand for more industrial space (Kean 2008) and the zoning applied here does not seem to allow for the flexibility that the neighborhood needs to remain balanced.

Being that zoning was the only official tool for large-scale change, residents in Greenpoint-Williamsburg and the city agreed to this as a mechanism for revitalization. After the rezoning and subsequent development of the waterfront, many were ambivalent concerning the results. Some contend that the mechanisms in place through zoning did not adequately address the waterfront in relation to the surrounding neighborhood and

existing community. The proponents of affordable housing and advocates for open space came to clash because the provision for affordable housing by the inclusionary housing mechanism allowed developers to build taller, bigger towers on the waterfront in exchange for more affordable units; this in at least one case led to the promised amount of open space not materializing. While a public walkway was required, this did not satisfy the open space advocates who worried the bulk of the towers would effectively preclude the provision of truly accessible, quality open space.

The economic crisis of 2008 stalled or thwarted many projects, leaving vacant lots and holes in the ground, the construction of only a portion of the affordable housing units proposed, and the flight of a disputed twenty-five to fifty industrial businesses that could no longer compete with rising rents (Furman 2009). Some of the hard-fought open space however, is beginning to actualize to the praise of the residents. This has been the largest and most ambitious rezoning proposal that has been carried out since the original waterfront zoning (DCP 2011). The city recognized that this is one model for redevelopment that has accomplished the goals of housing and open space but cannot be universally applied (Marrella 2011).

Greenpoint-Williamsburg presents an interesting case of the way land use, specifically zoning decisions have affected the ability of the neighborhood to adapt to changing conditions. The community planning process was effective in allowing those who live in the neighborhood to contribute to future decision-making. They were able to resist noxious industries, create parkland, and provide housing. As necessary as new housing is, much of what was built is unaffordable for the majority of localized demand because the desirable waterfront location is not conducive to large amounts of affordable units. The tools at hand were able to effect tremendous change, but were too limited for a flexible outcome of resilience against economic cycles and changing demographics.

### **PLANS FOR REDEVELOPMENT IN RED HOOK**

The 197-a plan for Red Hook came out of similar circumstances as those in Greenpoint-Williamsburg but preceded it by four years. Submitted in 1994 and adopted in 1995, issues such as geographic isolation, poverty, crime, waning of the maritime industry and lack of economic opportunities were at the forefront of the community's concerns. They became exhausted by reacting to proposals they saw as adversely affecting their neighborhood and chose to be proactive in articulating their own vision for the neighborhood's future within the 197-a forum. In the mid-2000's grand plans were underway for Red Hook's redevelopment concurrent with the new international cruise terminal. A clash emerged with the Economic Development Corporation's (EDC) plans to convert 120 acres of industrial piers to residential developments, a proposal the long-time industrial users

fiercely oppose (Furman 2010). Plans were also underway to demolish the old Revere Sugar Refinery and build residential, shops, and a marina on the property, which is surrounded by industrial uses including the Erie Basin Bargeport, a functioning transport hub (see *Figure 13: Current Uses at Erie Basin, Red Hook*). The owners of the Bargeport claim the district is unsuitable for commercial uses because of the 24-hour clamor they cause, but developers and the EDC claim this type of mix has worked well in other cities (Furman 2010). Changes were subsequently made to the zoning map that converted some manufacturing into mixed use and added 'special use districts,' but the scale was not nearly as grand as in the case of Greenpoint-Williamsburg (see *Figure 14: Current Zoning in Red Hook*). In 2006 the 19<sup>th</sup> century Revere Sugar refinery was demolished to the outcry of preservationists who claimed it was eligible for status on the National Register of Historic Places. Today the site sits vacant, devoid of its iconic dome, and awaiting an upswing in the market that will allow a shopping center development to be feasible (McLaughlin 2009).

In 2008, the city radically altered the trajectory of its approach to investment in Red Hook. Plans had called for both working and derelict areas of the waterfront to be transformed into mixed-use with restaurants, residential, neighborhood commercial and big box retailers, expanded cruise terminal, marinas, and a ferry stop. The New York Times cites political and practical roots for the dramatic shift in vision (Bagli 2008). As the credit crunch and declining economy stymied new development, others took the opportunity and fought to retain functioning aspects of the working waterfront. New York representative Nadler supported the retention of longshoreman jobs for their high pay and the Brooklyn waterfront's capacity to effectively move freight, as well as the industrial base to make up for loss on Wall Street. The city had hopes to evict American Stevedoring, operator of the Red Hook container port but its owner successfully foiled these plans. Instead, American Stevedoring was able to negotiate a new ten-year lease in 2008 with the Port Authority for Piers 7-10 and subsequently signed contracts with four new shipping lines. The city notified developers in 2008 that plans to develop Atlantic Basin (Piers 10-12) into mixed-use were scrapped. It is evident by the Red Hook case that plans were driven by property-led development and in the absence of capital, the entire vision for the district was revisited. Business and real estate cycles clearly influenced, if not determined the outcome and adaptability of Red Hook's future.

In Red Hook, many of the tools for waterfront development used in Greenpoint-Williamsburg are not applicable because of the industrial zoning. Waterfront Access Plans and the waterfront zoning text apply mainly to residential zones on the waterfront. Current residents believe that the city's 'Significant Industrial and Maritime Area' designation does not protect existing, non-polluting industrial business nor the coexistence of residential and



Figure 13: Current Uses at Erie Basin, Red Hook  
 Source: Manhattan Institute

# CURRENT ZONING

W Architecture for SBER

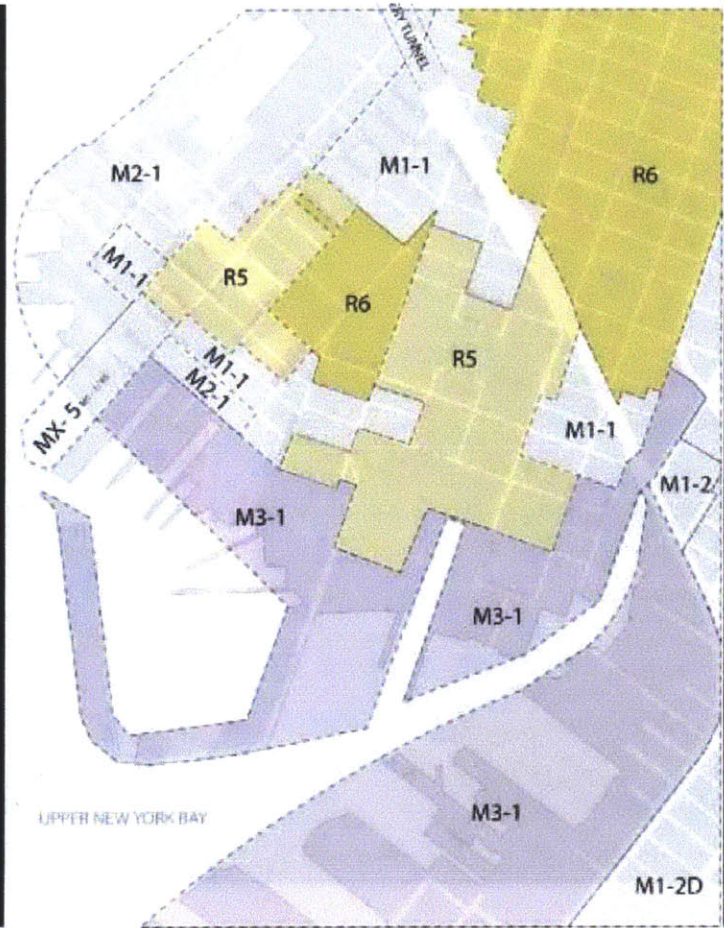


Figure 14: Current Zoning in Red Hook  
Source: Manhattan Institute

industrial uses along the waterfront. This leads one to believe that in the next upmarket for commercial or residential real estate, Red Hook could once again be the recipient of grand plans for a shiny new waterfront. Will the lessons of overzealousness be remembered? Perhaps they will with a few landmark events.

The recent story of Red Hook's Graving Dock No. 1 is one that will go down in infamy. Graving Dock No. 1 was completed in 1866 for the Eire Basin Dock Company and was one of the largest dry docks in the world at that time. A graving dock is a stationary type of dry dock, an excavated basin made to be watertight and having a gate to seal the end that is open to the sea. Once the ship is in place, pumps expunge the water and leave the ship's exterior hull exposed for repairs. The once national powerhouse Todd Shipyards Corporation opened in Red Hook in 1915 and became New York's largest ship repair facility. During the World War II era, employment and productivity reached its peak with nearly 20,000 workers. By 1983, decline in the maritime industries and labor arbitrage contributed to bankruptcy and the yard was sold to United States Dredging in 1985. They then leased it to New York Shipyard Corporation, which operated there until 1993 when Stevens Technical Services who repaired tugs, barges, city sludge boats, and other vessels bought the facility. In 2005 the city decided to redevelop the area by selling the property to Ikea, their first retail outlet in New York City. Stevens Technical Services was then evicted and the repair facility closed (Habstritt 2006). Ikea's site plan determined that the graving dock was to be filled in and asphalted for a sizable parking lot, commensurate with a big box furniture retailer. Ikea was allowed by the city, even encouraged to build over an economically productive facility and historic resource. The Municipal Arts Society who advocated for the preservation of the dock drew up an alternative design. In their design, footprints were rearranged such that the same square footage, ample parking, and a waterfront park could be provided while retaining the use of the graving dock (Kersavage 2011). These plans were dismissed as impediments to a speedy process.

Almost immediately after the conversion of the graving dock to asphalt, a new city-wide industry study was published, emphasizing the need for an increase in maritime infrastructure to maintain the viability of the port. It details what types of facilities are desperately needed and specifies for seven additional graving docks of the type just destroyed (NYEDC 2007). A new facility of the type needed would cost on the order of \$1 billion to build and comes with an extremely difficult permitting process. Research found only one such permit in the United States in recent years (Kersavage 2011).

Lisa Kersavage of the Municipal Arts Society, who advocated relentlessly to save the graving dock, tells a story of why it is so important. Not long after the graving dock was filled in and the parking lot built atop, there was a large foreign ship unloading in Brooklyn.



An unforeseen circumstance put the ship in need of immediate repair before it could return to the open sea. There are a few graving docks in Navy Yard but it is difficult for tall boats to get under the suspension bridge. The ship had to be tugged elsewhere to unload, extra weight was put in the ballast to sink it low enough to duck under the Brooklyn and Manhattan bridges in order to navigate to the Navy Yard. The process took nearly a week, was extremely laborious, and the company was losing money every day that the ship was not in service. The exact value of the graving dock in Red Hook was not quantified before it was gone. Its location meant ships did not have to navigate under bridges and it was big enough to accommodate some of the largest ocean-going vessels. There are a few equivalent graving docks in Staten Island but all were in use and there is typically a waiting time to get repairs done there. The value of ship repair facilities ties directly to the viability of New York as a global center of trade. In order to maximize opportunities for growth in maritime shipping, land use decisions need to be made *not* to limit future choices (Kersavage 2011).

Much as the storied demolition of Penn Station instigated the historic preservation movement, the filling in of the graving dock is seen as a parallel: the loss of that resource spurred a focus on the issue of the importance of industrial and maritime resources (Marella 2011) and thus the options that we bequeath those in the future.

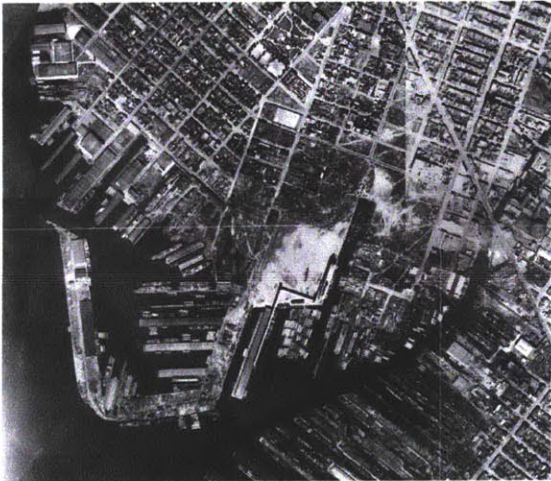
See *Figure 15: Aerial Images of Red Hook Over Time*, illustrating the transformation of Red Hook's Erie Basin and adjoining neighborhood.



1996



2008



1924



1951

*Figure 15: Aerial Images of Red Hook Over Time*  
*Source: City of New York*

## **5. CONTEMPORARY ISSUES FACING BROOKLYN**

### **COMMUNITY PLANNING PROCESS**

As explained, many groups have legitimate claims; water-dependent uses are self-explanatory. Industry has a historic claim and now that manufacturing zones have shrunk dramatically, waterfront neighborhoods are some of the only places these uses are allowed. There is clearly a need for more housing in New York, and existing neighborhoods' claim for public access has been legitimized by the creation of Waterfront Access Plans, as well as the public trust doctrine which states that the waterfront should be preserved for public use. I have discussed the well-meaning ideology behind the 197-a community planning process but there is variable influence these can have on actual development. The governing system remains somewhat detached from the community planning process, which limits collaboration between the large centralized goals and the seemingly small decisions that affect those who live and work there on a daily basis. Without the mechanisms in place for interaction and implementation between the two, external influences from those with the greatest backing goes unchecked. Internal neighborhood division on land use decisions has allowed developers to align themselves with one faction or the other and again, consensus is not reached in these cases.

Zoning seems to be the only tool that is cogently used to effect significant change at the waterfront. Still, much of the zoning tools available apply only to the waterfront parcels and address mainly issues of bulk and access, views and access. After the zoning changes were approved in Greenpoint-Williamsburg, speculation and redevelopment affected the entire district, not just the waterfront because there was not a mechanism to directly address this relationship. When port activities dominated the waterfront, the city viewed it as detached from adjacent neighborhoods but as the port left, the city was not quick at recognizing the evolving relationship between the communities and their waterfronts. Implementation of 197-a plans still remains on a parcel-by-parcel basis and is subject to deal-making between the city and developers (Grassi 2006). There is still a gap in the perspective of future of the community/waterfront relationship, its evolving nature, and thus the need for planning to be adaptable.

### **THE NEW ECONOMY AND GENTRIFICATION**

Urban form of the industrial city was based on the transport technologies of rail and docks interacting with economies of scale. This meant an enormous competitive advantage based on proximity to wharves, warehouses, and connected rail access. Labor was also tied in to the equation by high commuting costs of locating further afield. With the advent

of containerization, roll-on, roll-off vessels, and trucking on subsidized limited access highways, the movement and storage of goods was no longer inseparable from the traditional high-density urban core. Instead, manufacturing, distribution, and warehousing found a competitive locational advantage where land was plenty and its cost low, congestion minimal, and labor mobile, enabled by the private automobile and its related infrastructure. As a result, labor-intensive industries moved to newly industrializing countries, and capital intensive, advanced technology and service industries often relocated to greenfields of deindustrializing countries like the United States (CDRF 2010).

The end of the era of heavy industry meant cultural and economic shifts that brought renewed growth in the largest former industrial cities. The service sector including education and research, financial, legal, and business services, medical services, and culture and media were able to replace manufacturing as an economic base. These new era industries took up considerably less space than their predecessors and were tied to large and specialized labor pools found in large cities. Household size was decreasing at the same time and human capital increasing by way of increasing female participation in the workforce and growing levels of education. These factors worked to make the urban core again necessary and desirable (CDRF 2010). Repopulation by the upper-middle class ensued and thus emerged the phenomenon of gentrification. This unremitting process has touched New York City since the 1960's but hit Brooklyn hard in the 1980's-1990's especially in Greenpoint and Williamsburg. As gentrification steadily perseveres, neighborhoods further from Manhattan are increasingly affected; Red Hook is currently experiencing this influx.

In order to better understand the process of land use change from industrial to mixed-use, we should distinguish between 'deindustrialization' and 'displacement.' "Deindustrialization is a historic event resulting from global competition. Displacement, which we observe more recently, is the result of land use decisions and gentrification" (Rutgers 2007, 16). While deindustrialization resulted in widespread abandonment of urban land, displacement results in more intensified use of urban land and higher densities. Deindustrialization caused a devastating loss of jobs mainly in manufacturing, while displacement threatens the little that remain, but are nonetheless essential to a healthy economy of Brooklyn and New York City. The phenomenon of displacement occurs because the premise on which we operate says that property is a commodity, like any other consumable or tradable good.

### **PROPERTY AS COMMODITY**

In light of this, high prices of land throughout global cities like New York inevitably cause developers to seek out the greatest return on their investment, which is usually residential or office space because of the high rent it commands per square foot. This philosophy of

property as pure commodity has smitten local government with the idea that all possible value should be extracted from a given parcel of land. However, this may not be a pure market outcome as a surface analysis suggests. Municipal policies have directly encouraged this trend. The city has offered subsidies, incentives, and low-interest loans to developers of residential and commercial properties because higher value property results in higher tax revenue for the city. This was recognized as potentially problematic, but not deemed important enough to mitigate. The *Citywide Industry Study* in 1993 cautioned against competition for land use:

...zoning has recognized that certain areas are making a transition to non-industrial use. In particular, widespread conversion of obsolete industrial loft buildings to residential use has been permitted....To ensure that zoning does not unnecessarily impede needed job creation and investment, this study examined the existing zoning regulations in light of current trends and the evolving role of industry. It concludes that zoning regulations need to be more flexible, accommodating, and as-of-right to encourage new investment in both the traditional industrial areas of the city and elsewhere (DCP 1993, 71).

A successful manufacturing district by way of its prosperity attracts both residents and commercial development and thus raises value of property to the point industrial businesses cannot compete without intervention.

Later into the 1990's, as predicted, the viable industrial parcels became highly sought after for residential and commercial development. Landowners began to discourage industrial tenants from remaining, giving them the option of month-to-month leases or exorbitant rents. When firms were priced out of staying, landowners kept the properties off the market and banked on selling for great profit to a residential developer. In addition to the land value ousting industry, illegal conversions became commonplace. Residential use in industrial zoned land was technically not allowed, yet parcels were selling at prices that only residential use would warrant (Rutgers 2007). Developers bought at these high prices and as hoped, obtained variances in order to develop residential units. Owners of half-empty industrial buildings were able to obtain variances with the argument that they were not able to secure industrial tenants, however critics argue that potential industrial tenants were deliberately denied so that the owner would be able to obtain a variance and convert some or all of these structures for residential use, commanding much higher rents. Landmark preservation status was also denied for many such structures, arguably to again allow for conversion to residential and the profit-reaping that would ensue.

## **A CASE FOR INDUSTRIAL RETENTION**

The rezoning of 560 acres of shorefront since 1992 (DCP 2011) has been predominantly from manufacturing to residential, favoring the creation of new housing over the retention of industry. The importance of additional housing to mitigate the shortage in New York is monumental, but in this district it also meant the loss of one million square feet (DCP FEIS 2005) of viable manufacturing space in a thriving industrial enclave. The newly designated mixed-use zones allow for residential, commercial, and industrial but history has shown that wherever residential is allowed, it will certainly become preeminent. The industrial uses that were grandfathered in to the newly designated mixed-use areas will also likely be soon displaced or retrofitted. Firms that own their buildings sell to developers and firms that do not face skyrocketing rents (Rutgers 2007). According to the highest and best use philosophy, this is quite sensible but let us look at why interventions in the market such as land use controls and due enforcement are valuable long-term for viability to the city economically and socially.

Laura Wolf-Powers from the Pratt Institute gives us several reasons that it makes economic sense to think beyond the highest and best use. First, manufacturers' linkages to other thriving industries such as arts, fashion, and tourism are well-documented. Industrial suppliers to these niche markets provide a unique local product that is difficult to substitute. Transportation costs are reduced for supplier, buyer, and consumer of the product by these linkages taking place in close physical proximity. Without the supplier of a unique product nearby, a manufacturer's cost could rise and without the specific product that is demanded, the retailers' sales dip, resulting in a lose-lose situation. "Allowing service sectors to displace industry altogether could, paradoxically, make service sectors less competitive" (Wolf-Powers 2003, 3).

Second, mixed-use neighborhoods that maintain some level of affordability tend to be more attractive to the creative class. The eclectic mix of light manufacturing, restaurants, artists, and boutique designers has been to the great appeal of many and has thus rendered Greenpoint-Williamsburg a neighborhood of innovation and entrepreneurialism. As land is transferred from industrial to residential and commercial uses, the creative class that has defined the neighborhood's character and contributed to its success is no longer able to afford to live there. This not only displaces people; when we recognize the whole as more than the sum of its parts, this phenomenon disperses an innovation cluster that has contributed to a growing economy.

Third, as was apparent in the early 1990's recession and even more blatant at the end of the 2000's, the city cannot depend on the finance and business sectors to sustain employment and growth. These advanced services sectors grew as a proportion of

economic activity in New York City throughout the 1990's and 2000's because of the diminished role of industry but not in absolute terms. It would be well-founded to protect from real estate pressures the light industry that has found a niche in Brooklyn. If land use law does not adequately address this, deindustrialization will continue not because it is not viable, but because city policies indirectly encourage it (Wolf-Powers 2003).

Fourth, a social justice argument exists for protecting industrial land uses within Brooklyn's industrial enclaves. These living-wage industrial labor jobs are typically replaced by low-wage service sector jobs in restaurants and retail establishments, often non-union and devoid of benefits. The displaced jobs are often held by immigrants, those with low-English language skills, low education, or people of color. A Pratt Center study found that the average manufacturing job in New York paid an average salary of \$49,000 per year while the average retail job paid only \$34,000 (Pratt 2009). Manufacturing jobs have shown wage increase above inflation from 2000 to 2005 while service sector jobs have not even kept up with inflation. Manufacturing jobs are often the platform from which immigrants and those from low-income backgrounds are able to establish themselves and become contributing members to society, much as the large industrial plants in America have done in the past (Rutgers 2007). This demographic is most underrepresented in other sectors so to diminish the manufacturing sector some argue, constitutes an injustice to said demographic as well as to all of society when members are not contributing to their full potential.

The mixed-use neighborhoods that attract the innovative, the artists and designers, are in general desirable and therefore also attract professionals who enjoy its eclectic environment but can pay higher rents. This makes for a greater challenge and one that must be addressed with corresponding rigor. Many city officials may agree with incubating clusters of creative light industry, but measures must be taken to directly support its retention where it exists or the current land use policies will dictate the default outcome in the absence of deliberate intention.

### **CREATIVE CLUSTERS: ECONOMIC RESILIENCE AND INNOVATION**

Let us look deeper into the aforementioned second reason for industrial retention. Activities taking place in space are not isolated from those around them nor are they detached from that space. Brooklyn's traditional manufacturing districts function as creative clusters, merging the new order with the old, and are deeply embedded in space. Gentrification and attraction of the creative class should not be seen as the only tool for redevelopment. Nor should industrial retention be seen as a nostalgic notion to keep industrial era holdouts. The existence of innovation clusters in traditional manufacturing districts has been overlooked by much current research and thus ignored by city policy-makers (Curran 2010). Since

the 2008 economic downturn, New York has been reawakened to the importance of its industrial districts and their locations for the city's economic stability.

Brooklyn still has a wealth of manufacturing clusters along its waterfront and these are successful today for the same reason they were in the industrial era. The characteristics that made a successful district in the past still hold true; creativity, flexibility, and just-in-time production are sought-after in new industrial regions but already exist in Brooklyn's traditional manufacturing districts. Social networks, a sufficient market for their product, and the very urbanity of their location is essential to small-scale manufacturing business' existence and success. The creative class and those of the new economy play an additional role often overlooked; their predilection for locally produced high quality products, which requires the space necessary for these goods to be produced (Curran 2010). This complements well the demand by Brooklyn's various immigrant communities for the ethnic products with which they identify, as discussed in the case study in Chapter Four. Innovation clusters occur somewhat spontaneously; policy cannot necessarily create them, but can set the conditions in place to encourage their emergence or foster their continued success where they already exist.

In Brooklyn, the number of jobs in niche manufacturing rose by 17 percent between 2001 and 2007 (Haughney 2009). The firms conduct small-scale operations and are tied to the other sectors of the economy such as service, distribution, publishing, marketing, and advertising. Williamsburg is one neighborhood where innovation clusters have formed in traditional manufacturing districts. Manufacturing and wholesale trade account for 17.6 percent of the residents jobs here, compared to ten percent for the rest of New York. Williamsburg has shown that the story of globalization and the mobility of capital has an alternate ending, where small urban manufacturers thrive based on flexible production methods, proximity to markets, local knowledge, and social networks, much attributed to their embeddedness in a longstanding urban industrial district. Policies have thus far not recognized their importance, especially the rezoning of large portions of the district to residential. The mainstream narrative of globalization has led city officials to actively engage in policies that disadvantage small manufacturers such as rezoning and parking restrictions that make it difficult for loading and unloading (Curran 2010). The extensive rezoning that took place in 2005 and full-throttle race into luxury housing development is an example of this. This was a product of a live-for-the-moment mentality that took advantage of a booming real estate industry but not the forward-looking approach of flexibility in an economic downturn.

A 2009 article in the New York Times, "At the Old Navy Yard, Niche Manufacturers Weather the Recession" explained that these small, specialized firms are very nimble and



can quickly adapt their products, marketing strategy, or client base. Some firms make products for government agencies, while others cater to the ultra-wealthy unscathed by the recession, still others saw shifts in their clientele but few saw precipitous drops (Haughney 2009). In order to remain a thriving district that adds flexibility to the economy of the entire city, firms need land policies that give them the opportunity to expand without leaving the urban labor pool and market they are dependent upon. Rather than grants for businesses that are displaced, policies should leave them unthreatened by major impediments to their network such as rezoning (Curran 2010). Sudden change happens and we adapt, but if there is a positive phenomenon that can be encouraged simply by letting it be, perhaps one smart policy for flexibility is to make sure that nothing intervenes.

## 6. DEALING WITH CHANGE

Repopulation of inner-city neighborhoods means reinvestment in all facets. If reinvestment is to occur in an arena of deregulation, paucity of public funding, and increased private interests making their mark on the public realm, forward thinking decisions are more important than ever. William Fawcett, in his work on environmental flexibility, explains that while designing for all possible future scenarios is impossible, policy makers can better accommodate some change by envisioning plausible future activities. Thus they can specify what the flexibility is for by defining a relevant set of 'possible future activity states.' Of course this is dependent upon available knowledge, and one aspect of available knowledge is that the future is uncertain. Thus policy makers can only work with present knowledge, but can recognize that the knowledge of those in the future will supercede their own.

### **ADAPTABILITY**

Many areas of Brooklyn are zoned for manufacturing but have residential uses grandfathered in because they were historically mixed. If they were to be rezoned for mixed-use, there are a number of ways development could play out and here I propose two scenarios.

New housing is in high demand, the residential market sees a resurgence, and most of the parcels are built out to high-rise residential with commercial on the ground floor. This option would create a huge increase in the population of the neighborhood and would require provisions for additional green space, parking, public transit, and pedestrian infrastructure such as wide sidewalks and capacious public spaces to accommodate the increased density. Pedestrian realm is emphasized and automobile and truck traffic is discouraged.

Protections are put in place to keep rent affordable for existing industries and they remain along with some new residential and mixed-use. The area becomes a successful industrial live/work cluster and the population grows, but not prodigiously. In this case, movement of goods and marketability of products would be of great concern. There may need to be upgrading of transport infrastructure such as provisions for loading areas and space for barge transport. It may be important to refrain from subdividing large parcels so that businesses can expand, to retain warehouse buildings with open, adaptable interiors, and to specify laws that enable manufacturers to be safe from noise and nuisance complaints.

If these are deemed the two most likely scenarios, plans can be flexible to accommodate any possibility within the bounds of these situations. For provisions to be made for both, we may specify a setback on structures such that space could be provided for the pedestrian

realm or loading areas. We could specify that a certain amount of shoreline access be set aside such that a water taxi station for commuters or a small barge port for transport of goods could be built. New developments could be required to provide certain amenities such as upgraded sidewalks and lighting in the event that the public realm becomes of greater importance. Protections could be put in place for existing, structurally sound warehouse buildings such that they could be used for manufacturing if firms needed to expand, or could be converted to lofts under conditions in which residential needs were to take priority.

We can look to the past to see where land use decisions have created flexible outcomes as well as the contrary. The legacy of the industrial waterfront has left us with contamination that limits flexibility in many cases. If remediation must take place on a site, it is a product of the land value reaching a threshold that it is worth the cost of remediation, and the cost of remediation that determines the future use. A simple capping of contaminated soil may be sufficient for a new parking lot, but residential units on the site would require a much greater undertaking. In the case of the Gowanus Canal, plans for numerous sites for redevelopment have been put on hold when its designation as a Superfund site became official.

Unexpected time delays in themselves mean greater need for flexibility; as time passes and business cycles fluctuate, what may have been a good market for a large residential complex may no longer be viable when the site is ready for development again. The industrial waterfront has also bequeathed us with commodious warehouses and factory buildings. A factory building was designed for a very specific activity, but a well-maintained structure can be salvaged as a shell and used for a variety of applications. Warehouses are fairly flexible as they typically consist of large spaces that can be used as-is or subdivided for offices or other uses. The civil war-era warehouse at the Beard Street Piers in Red Hook has been successfully converted to a supermarket along with a mix of uses on upper floors. Some praise the development as a much-needed amenity for the neighborhood and with unique character at that, while critics argue that a warehouse on the pier should be reserved for a use that requires access to the water. Nonetheless, the pier infrastructure and warehouse building were successfully put into productive use because the site was inherently flexible.

Joan Bartolomeo of Brooklyn Economic Development Corporation suggests that functional obsolescence in structures along the waterfront is largely a myth. “I have seen these buildings reused for a million different things, including reuse of manufacturing, probably 75 percent of what’s there is adaptable” (Bartolomeo 2011). She cites the common belief that the column spacing in these structures is too close to provide adequate room for

contemporary workspace but contests that in reality, the small manufacturers are looking for spaces like this. They can manage with the column spacing and actually like sharing a large structure with other producers because of the vitality it creates and the potential for knowledge spillovers (Bartolomeo 2011).

## **UNCERTAINTY**

Planning for waterfront land use must acknowledge future uncertainty and allow for flexible strategies that can adapt to these unforeseen changes. The concept of 'lifecycle options' includes whole-life costing to evaluate sustainability from a long-term perspective. Fawcett's research in whole-life costing breaks away from the conventional in assuming that the future cannot necessarily be predicted. "A lifecycle option is a feature of a design or plan that makes it possible for new decisions to be made in the future.... Lifecycle options transfer decision-making from people in the present to people in the future who will know more about the changing state of the world" (Fawcett 2011, 15). There are three main types of lifecycle options: to expand or upgrade, to switch, or to contract or abandon. These can be physical such as the provision of a certain easement of open space at the water's edge to allow for park, promenade, or rail line. They can also be social or legal conventions, as in a zoning designation that allows multiple uses within a given building.

## **GROWTH**

The Brooklyn Navy Yard is operating at one percent vacancy and typically has a long waiting list for tenants (Hopkins 2011). The 300-acre historic shipbuilding facility, is now an industrial park that hosts all manner of industries and manufacturers. The largest employers in the yard exemplify the diversity of tenants and flexibility of the space: Steiner Studios sound stages, Cumberland Packing--manufacturers of Sweet 'n Low and Sugar in the Raw, B&H Photo & Electronics, GMD Marine ship repair facility, Gilt Groupe e-commerce, and Shiel Medical Labs (BNYDC 2011). The Navy Yard is in the process of developing its six-acre southwest corner of underutilized land with an anchor supermarket and other commercial uses on the ground level, and light industrial on the upper floors. They identified an underserved market for a grocery store in the neighborhood as well as the need to combine this with additional industrial space (Fung 2009). Several other buildings are currently under construction but there remains vacant land in the yard to be dealt with at a later date, depending on the nature of the businesses that require the space when it is deemed ready for development. At present, the unbuilt space is being used to store road salt (Hopkins 2011).

The Navy Yard is an example in which the opportunity for growth of businesses is taken into account. Of course, limits to growth are evident: dimensional limits are bound by the size of the site, economics limit the funds for new structures or affordability of land,

political limits are enforced by floor area ratio, zoning, bulk and access requirements (Cowan 1963). Peter Cowan in *Studies in the Growth, Change and Ageing of Buildings* likens building complexes to evolving systems as they change incrementally by style and form in response to persisting cultural norms of the time and place.

In Victorian hospitals the pursuit of fresh air ventilation, regardless of other factors, led to designs which were divided into separate pavilions, often with separate sanitary annexes; the hospitals were planned as a series of small, separate, self-contained units which quickly became obsolete as circumstances and medical patterns changed (Cowan 1963, 73).

This piece of history points to the fact that the pursuit of one functional idea and omission of all others results in rigidity rather than flexibility. When a plan is tailored too closely to one function, obsolescence rapidly ensues. In a tight land market, this precludes productivity. Manufacturers in Brooklyn have had trouble expanding both when space is available, as well as acquiring land in general. Where thriving manufacturing clusters exist, land use planning should accommodate the possible need for spatial expansion. A protection mechanism may need to be created that addresses nuisance complaints in areas where manufacturing is already a significant land use activity.

## **DECLINE**

Though growth is the hoped for scenario, it is not always the reality. If the waterfront is to be designed and planned for multiple scenarios, we should not omit a future aside from growth. As we have seen in shrinking cities, as well as in thriving cities during economic downcycles, when we design for indefinite growth, it can lead to negative outcomes in obsolete structures, landscapes, and modes of operation. Urban decay is the result of a landscape designed for a growth that has ended (Guignon 2010).

Thus far, we as a society have not found a way to decouple economic production from non-renewable resource consumption and the negative ecological implications thereof. Use of finite resources has correlated directly with both industrial and post-industrial growth. Does the depletion of these resources signal an end to growth as we know it? From a linear view of the history of progress, declining resources would mean declining society (Guignon 2010). Oswald Spengler in *The Decline of the West* describes civilizations with a cyclical model; Western civilization will pass like a season, peaking and then declining (Spengler 1922). In a recession, we must adapt our planning strategies to decline, yet we always assume it is temporary. Considering the trajectory of our continued dependence of finite resources, population growth and carrying capacity, and our nation's position on the world stage, we should consider decline as well as growth (Guignon 2010). Though

this sounds pessimistic, it should not be dismissed, even at the small or temporal scale. Disregard of the possibility for monumental change results in situations like present-day Detroit. Path dependence, unchecked reliance on one industry or method of growth, can lead to precipitous decline and expeditious obsolescence.

## **RESURGENCE**

We can think of ebb and flow in the built environment on a variety of levels, from the periodic investment oscillations of business cycles, to the technological revolutions we see once every generation or so, to the triumph and decay of civilizations. There is always a period of reflection. We begin with a golden age of progress; as that slowly wanes, the old order is forgotten. Only then do we seek to restore the world around us to its former glory. J.B. Jackson reminds us that decay is a necessary condition for restoration, rediscovery, and renewal. Only through a period of dereliction do we come to appreciate what was lost and what is to be created anew.

But there has to be an interval of neglect, there has to be discontinuity; it is religiously and artistically essential. That is what I mean when I refer to the necessity for ruins: ruins provide the incentive for restoration, and for a return to origins. There has to be (in our new concept of history) an interim of death or rejection before there can be renewal and reform. The old order has to die before there can be a born-again landscape (Jackson 1980, 102).

Abandoned landscapes of the city therefore lead to opportunity for creativity. Through these forgotten spaces we find some of the greatest flexibility because the old order in which they were rooted is gone. As there is no more attachment but to the symbolic, the structures and patterns can be repurposed, reordered.

## **ROLE OF GOVERNMENT INTERVENTION**

Our representative government is in a position to influence collective decisions on how we as a society plan for the possibilities of growth, decline, and transformation. As we have discussed, one of the greatest dilemmas of today's global cities is that of competition for land. The fundamental reason that zoning and land use control, such as comprehensive planning, came into existence is because market forces were not producing the optimal arrangements, densities, and use mix on urban land, thereby contributing to undesirable health and social effects. To create an urban environment that more holistically addressed the social and economic needs of the city, land use planners were employed to moderate market outcomes where necessary.

Land use controls and guidelines, in some form or another, are a ubiquitously accepted form of government intervention (Schuster and de Monchaux 1997). In consideration of historic preservation, Schuster and de Monchaux liken the economic phenomenon of 'spillover effects' to 'interstitial benefits,' "whereby the quality of the public realm as a whole can be greater than the sum of its parts, provided that private conservation action is externally stimulated and coordinated" (Schuster and de Monchaux 1997, 9). This idea applies to urban phenomena from which there is social benefit to be had outside of a market mechanism to provide it. Economic efficiency falls short as the market tends to account only for private, rather than social benefits of consumption. A related argument posits that government has a responsibility to provide intergenerational benefits, which the free market also tends to ignore. Lastly, the option of a choice in the future for a good or service of which there is no current demand, or 'option demand' requires intervention into the market (Schuster and de Monchaux 1997).

## **TOOLS FOR IMPLEMENTATION**

With a clear need for government to regulate a free market for a better urban environment, how is this accomplished? Governments should do what they are good at: coordinating different actors to ensure that each one's investment contributes to overall goals (Schuster and de Monchaux 1997). In *Preserving the Built Heritage: Tools for Implementation*, Schuster and De Monchaux outline five tools that governments can use to implement preservation policies, and that can further be applied to urban design and development. In the following section, I will outline these five tools and give examples of how they can, and are, being used in the Brooklyn context.

The first tool and most heavy-handed, is *ownership and operation* with the message "the state will do X." The government may own land and structures, as well as institutions and enterprises and in doing so, can implement through direct provision. The city can choose to lease property that it owns to whomever it pleases. If there is a desire for a certain activity to take place there, the city has the autonomy to ensure that it will, because it has direct control over the property.

An example of this can be seen in southwest Brooklyn; the Sunset Park Waterfront is a large industrial district comprised of several major parcels of city-owned land including the South Brooklyn Marine Terminal, the Bush Terminal industrial campus, the Brooklyn Meat Market and the Brooklyn Army Terminal. In 2009 the New York Economic Development Corporation released the Sunset Park Waterfront Vision Plan that outlines neighborhood, city-wide, and industrial development goals for the district. The plan recognizes that "an industrial waterfront on this scale in an urban environment is a valuable, scarce resource" (SPWG 2009, 8) and the high value of such a large and contiguous concentration of

city-owned parcels. As such, the city has the opportunity to implement “district-wide environmental policies that can be a model for private owners and tenants” (SPWG 2009, 17).

Municipal ownership makes it feasible to use networked infrastructure at the district scale. Some of the infrastructure proposals include solar array networks across large footprint industrial building rooftops, district heating loops, and investment in freight and barge networks to serve the district. This city-owned group of properties is also conducive to policy strategies; some of those mentioned in the plan are consistent efficiency requirements at the individual building scale and brownfield remediation programs for multiple properties. Lastly, the city as owner also has the power to attract their desired tenant mix. One of the goals in Sunset Park is to bolster marine industrial employment. As such, the city actively sought out firms toward this end; and as a result, they have secured leases with two marine-cargo based firms at the 88-acre South Brooklyn Marine Terminal (SPWG 2009).

The second tool is *regulation*, with the message “you must (or must not) do X,” and is a concept commonly understood as government intervention in the marketplace. Its converse, deregulation, denotes government withdrawal from the marketplace. From an economic standpoint, regulation stems from both public and private interests. From the public perspective, regulation allows for collective interest to remedy market failures, control monopolization and imperfect competition, provide public goods, rectify externalities, and be a means for the collective voice of society to be heard. From the private perspective, regulations can, and are prone to be captured by private firms to work for their own self-interest by spinning regulatory processes to their advantage.

One example of regulation is zoning. Firms that do not fit the requirement of a certain zone are not allowed to locate there, except with variances. One of the original intentions behind zoning was to protect public health by separating heavily polluting industries from residents. Presumably, the effluent and spewing smokestacks were distanced from neighborhoods, cancer, asthma, and other environment-related afflictions could be curbed. The free market did not take public health into account when considering firm location. Because of zoning, a firm today is not allowed to locate a waste transfer station within a residential zone. However, one of the oversights in traditional zoning—and this is certainly the case in Brooklyn with its abundance of light manufacturing firms—is that much of today’s industry is far cleaner, less nuisance, and a generally good neighbor to residents.

The third tool is *incentive (or disincentive)*, with the message “if you do X, the government will do Y.” Officials can provide programs to persuade other actors to align with their policies



in this way. Incentives are by nature conditional; a firm or organization is in a position to choose whether or not to accept an offer. If conditions are deemed fair to both parties, a deal is struck. Incentives might be used to attract certain types of businesses to a district, preserve historic structures, or provide open space. One example that is commonly used is tax-based incentives. There are a variety of types, but two of the most ubiquitous are income tax deductions and tax credits. Income tax deductions are subtracted from the taxable base before calculating taxes due and are thus a function of the marginal tax rate. Tax credits allow the firm to subtract a given percentage of expenditures off of the income tax. They are not a function of one's marginal tax rate but rather a fixed percentage, for example twenty percent of all expenditures on building maintenance. This is used widely in affordable housing provisions, where by providing a specified percentage of affordable units, the developer is allowed to do something otherwise not allowed, such as build to a higher floor area ratio. Incentives are also often used to encourage a developer to provide public space.

In New York City, the Mayor's Office of Manufacturing and Industrial Business has created 'Industrial Business Zones' (IBZs) based on existing manufacturing areas. These were created with the goal of protecting and supporting industrial uses in the city, some of which include Greenpoint-Williamsburg, Brooklyn Navy Yard, and Southwest Brooklyn. In addition to expanded assistance services for firms located in these zones and a commitment not to re-zone the area, the city has implemented a tax incentive program (NYC IMB 2011). To attract industrial and manufacturing businesses to locate within IBZs, a one-time relocation tax credit of up to \$1000 per relocated employee is available to those firms who move from outside into an IBZ or to a new site within an IBZ (NYC IMB Tax Credit 2011).

The fourth tool is *property rights*, with the message "you have the right to do X and the state will enforce that right." Property rights tie back to economic definitions of public goods, those goods that are accessible to all and not limited to those with privileges to them. Public goods tend to be underproduced by the private sector, because as they are free and available to all, there is no incentive for anyone to produce them. This results in the tragedy of the commons and other such undesirable outcomes. Governments can define property rights in ways that facilitate desired behavior in the private sector to preserve parkland or historic resources. Whether property is deemed a natural right or government-given, government is the sole entity that defines and interprets these rights.

Traditionally, development rights are inextricably linked to a particular site and if not exercised on that host property, not used at all. American law inherently views property with the entitlement to develop it and to earn income from it so conflict exists when juxtaposing

this premise against such laws as those pertaining to preservation of historic resources or water-dependent use. A property is unique, and development rights are linked to that site alone, so when the site's development rights cannot be used on that site, which by definition is the only place they can be used, intrinsic conflict is evident. Restrictions on what an owner is allowed to do with her property can be viewed as a taking since her right to develop is being rescinded in favor of a public good. Transfer of development rights is a tool that governments can use to mediate such situations. This process allows development rights to be severed from the host parcel, then applied to a new parcel. The owner can in essence sell the right, commodifying it so that she can still profit off her land.

An example of this would be a waterfront site which has a historic warehouse that the owner wants to demolish and redevelop. The city has imposed laws that restrict demolition of such structures and the owner thus is unable to derive the same revenue that he could if his parcel of land had no existing structure on it. An alternate site is found to accommodate the development and the owner is allowed to proceed using the sum of the development rights of the previous site plus those allowed by the zoning code for the new site. Transfer of development rights programs can reduce the need for zoning variances, since developers can use the market to obtain additional development rights rather than attempting to persuade city officials to make exceptions.

The fifth tool is *information*, with the message "you should know X, or you need to know Y in order to do X." Several reasons exist for the use of information as an implementation tool, the first being to inform the public of laws and mechanisms that exist, and how one might take advantage of them. It can be seen as the responsibility of the government to see that its citizens are informed of its policies. The second reason is to make the public more aware of the existence and importance of an idea such as public access to the water or the preservation of historic industrial structures. Third is the recognition that public resources are limited and the more parties who know are also able to disseminate, taking some burden off the government. Information is often seen as a weak tool, but it can in fact be more effective than regulation when used in the right context. When information is promulgated, an idea can take hold and spread in the direction intended by those who initiated the idea.

In the 2011 New York *Comprehensive Waterfront Plan*, one goal is to increase the recreational value of the waterfront such that it becomes a part of everyday life in the city, and do so through the spread of information. "The revitalization of the city's waterfront is not complete without promoting the waterfront as a destination" (DCP 2011, 5). One of the sub-goals of the plan is to "increase public knowledge and awareness of our waterfront and waterways" and to "create [a] website with information on public access

locations, including type of access (launch, dock, esplanade etc.), water quality, depth, currents, and tides” (DCP 2011, 13). The plan tacitly suggests that though awareness, a greater appreciation of the natural and cultural features of the waterfront can be instilled, a societal shift in values can transpire, and the public can take on more responsibility to enhance stewardship.

Any combination of tools may be appropriate in a given situation. Where the free market is inefficient, less-than desirable outcomes result and these in turn often lead to less than adaptable conditions. Government intervention is the most effective way to intervene. This is especially the case with the issue of intergenerational benefits. These are rarely accounted for in the market and undoubtedly necessitate intervention. Intergenerational benefits are of utmost importance when we recognize the fact that the next generation will have more perfect information than we have when it comes to making decisions in the future, so we should endow them with options to the best of our ability.

## 7. CONCLUSION

### KEY FINDINGS

The following is a summary of some of the main points discovered in the research:

Up through the last wave of development, real estate interests have driven decisions on the type of development that was built and the location. 'What works on this site now' seemed to be the mantra rather than 'what does the city need long term and is this the optimal site for it?'

Where rezoning has occurred to allow for residential, manufacturers were outpriced. With the economic downturn, the residential buildings are difficult to occupy, and many projects never broke ground except to scrape. Manufacturers were forced to move and much of the land remains vacant. It remains to be seen how this plays out if and when the economy picks up in full force.

The economic downturn revealed the overzealousness with which luxury housing was being built, producing a great surplus. It brought to light New York's dependence on the financial and real estate sectors. This overzealousness displaced productive uses of the land, and as a corollary, contributed to declining diversity in the local economy. Fortunately New York has a solid base of diverse sectors, which it can grow if it prioritizes this. Trade, heavy industry, and light manufacturing are some of these sectors and are highly reliant on their waterfront location either because of necessity or historical patterns which have created agglomerations.

Niche manufacturing industries are quite significant in waterfront industrial zones. They are deeply embedded and dependent upon their close-in urban location. Where clusters of industry have been protected from rezoning, they are flourishing. However they cannot command the rents that residential uses could, given sufficient demand.

Inland design standards made the new buildings built in this area contextual. Height, bulk, and public space requirements on waterfront parcels have not been as satisfactory. The waterfront has been treated as a strip rather than the edge of a larger piece in terms of urban design. As a result, not enough attention has been paid to relationship between waterfront and inland neighborhoods.

The new Waterfront Comprehensive plan reveals officials' renewed interest in the port and its importance to the city. The significance of the port to New York in the global economy is now emphasized, whereas it was taken for granted before. The viability of the port rests on marine support services which are found around Brooklyn's waterfront and are located

there because of natural features and proximity.

## **SUGGESTIONS**

In its very constitution, waterfront development is requisitely lumpy; not elegant, nor graceful, nor dignified. The historic development of the waterfront has left us with large parcels of land by way of large factories, warehouses, and transport systems—far out of scale from the walkable urban neighborhoods that adjoin them. This legacy has enabled large-scale redevelopment projects to occur. The magnitude of intervention and monumentality of change often corresponds to the physical size of the parcel. This physical scale is matched by large-scale forces: macro-shifts in technology and flows of capital transformed the waterfront landscape seemingly overnight half a century ago. Yet, it has taken decades to recalibrate, re-inhabit, and recreate the urban waterfront. A few grandiose events are far outnumbered by dozens of incremental shifts and nearly imperceptible metamorphoses. The nature of waterfront development requires vigilance in adhering to a greater vision than the project at hand, to the idea that progress is not always linear, and in recognizing that information asymmetry that exists between generations. We, in the present, should leave some decisions to those in the future who will be better equipped with more perfect information.

## **ENGAGE INDUSTRIAL LAND OWNERS AND TENANTS IN THE PUBLIC REALM**

As private enterprises are the standard method by which to create public amenities, and being that much of the waterfront is zoned industrial, should they not also contribute to a better public realm? Waterfront access plans dictate public access requirements in new residential developments but they are not given consideration at industrial facilities, which make up a significant amount of Brooklyn shore. Of course there are limitations as activity varies widely—a kayak should not be drifting around container port cranes. But a warehouse or distribution facility could provide a pier on its perimeter for the benefit of the community as well as the workers on their break. Just as residential developments must provide views, industrial facilities could do the same; though a fence may be necessary, removing opaque materials where security issues do not warrant them would make the area feel safer and more welcoming. The inland side of waterfront parcels should blend in with the neighborhood—ample sidewalks, trees, and a pleasant pedestrian environment should not be precluded from those boundary sites where waterfront industry meets inland. Green infrastructure programs are another idea wherein industrial owners/tenants could become better neighbors and bridge the division between neighborhood and industry (Pratt 2001). Requirements could be set for green roofs, soft stormwater infrastructure, and street trees in the public realm. This would be a benefit both aesthetically and for health and welfare of residents and workers throughout the day.

New York City's population is expected to grow nearly fourteen percent from now until 2030, reaching a projected population of 9.1 million that year (DCP 2006). A healthy environment is increasingly important as we acknowledge social justice and basic human welfare in an increasingly dense urban environment. Increased density will be especially evident in presently underutilized areas of waterfront neighborhoods. Red Hook is currently home to approximately 10,000 people, half the 20,000 population it supported in the 1960's (Khayata 2010). This means it could support a doubling of its inhabitants but would necessitate careful planning for transit, infrastructure, and employment. Strategic planning of industrial employment on the waterfront, and housing that does not compromise industrial space, could result in a well-functioning, more livable Red Hook. This, in turn, provides the conditions for more autonomy for future generations that live there and make decisions for their own time.

#### SEE WATERFRONT AS HOST TO INNOVATION AND ECONOMIC RESILIENCE

What we can do today with the information we have is to not set limitations on possibilities. We should identify those trends toward positive growth and set the conditions to perpetuate them. One of these is niche manufacturing in New York. As discussed in Chapter Five, waterfronts are host to the city's few remaining industrial districts. These are comprised not only of the large-scale operations, but innovation clusters, entrepreneurs, and niche manufacturers. In these waterfront manufacturing zones, because of their established location, dense urban location, and other conditions, agglomeration has led to thriving niche industries that not only serve and are dependent upon the New York metropolitan market, but once started in New York, can be trendsetters and create demand for national and international markets. The economy of New York is characterized by small units of production, a decidedly non-Fordist model diverging from the ever-larger scales of production that tended to characterize growth after World War II, and remain today. The small firms engaged in this are absolutely dependent upon a dense urban location. Manufacturing zones where they are permitted to locate are predominantly in Brooklyn's waterfront industrial districts. Every effort should be made to foster incubator spaces and protect manufacturing land that enables innovators to implement their ideas and small businesses to grow.

#### REVISIT INDUSTRIAL BUSINESS ZONES

The Mayor's Office has designated Industrial Business Zones (IBZs) as havens to support and protect industry with tax incentives and support services for businesses. However, they comprise only thirty-eight percent of the city's dwindling manufacturing-zoned land (Pratt 2009). What's more, these protected enclaves are being infiltrated by uses that compromise the integrity of the system. Under the current standards hotels, big box retailers and large office buildings can be built 'as-of-right' with no variance required.

The Mayor has promised not to rezone these districts, but this has no legal recourse in the long-term. Under a new administration, zoning could easily be converted through the standard land use review process. At present, this system is not poised to meet the goals set before it; this is egregious considering the \$17 million in funding allocated toward it. The Pratt Center has outlined the following steps the city should take to rectify this situation. Commercial uses should be prohibited except under special circumstances and with an appropriate permit. Much of the manufacturing-zoned land that is not in the IBZs should be annexed into it. Industrial Employment Districts should be created to make stronger the protections of the IBZs and anchor them. A study should be conducted to understand possible impacts of converting more manufacturing-zoned land to other uses, and the necessity of such rezoning should be quantified. Until then, there should be a moratorium on rezoning the modicum of manufacturing land that remains.

#### DESIGNATE TRANSITIONAL AND NON-TRANSITIONAL MIXED-USE DISTRICTS

Mixed-use districts—those where residential, commercial, and manufacturing co-exist in harmony--have characterized Brooklyn throughout its industrial history and provide a basis for a waterfront neighborhoods' identity. As described in Chapter Five, because a variety of uses are allowed, real estate pressures are causing displacement of manufacturing businesses. The Pratt Center has suggested a solution to this problem by designating Transitional and Non-Transitional Mixed-Use zones.

Non-Transitional Mixed-Use districts should be designated in areas where significant amounts of manufacturing jobs and firms exist and little residential conversion has take place. Manufacturing firms located here should have access to business support programs and “should employ financial and programmatic tools such as internal cross-subsidy programs and land trusts to maintain a predetermined mix of uses that are deemed to meet a public purpose objective such as the creation of a diverse, competitive, and healthy economy” (Pratt 2001, 10). Non-Transitional Mixed-Use designation should be applied to those areas where residential and commercial have already supplanted much of the manufacturing base. Extant industrial uses should be grandfathered in and be presented with incentives to improve their environmental and compatibility ratings (Pratt 2001). This suggestion ties back to the ‘interstitial benefits’ made possible by government intervention mentioned in Chapter Six. These suggested interventions can cause a desired long-term outcome that has greater benefit to the public than the free market alone is able to provide.

#### RESPECT IMPORTANCE OF PORT SUPPORT SERVICES

With the largest port in the United States situated in New York Harbor, the maritime facilities that support the success of the port, trade, and water transport though not high-profile, are high in significance. Generating more than \$18 million in economic activity

annually and \$2.2 billion in state and local taxes, the Port of New York and New Jersey is a hub for the northeast and beyond, including Chicago and Montreal (SUNY 2007). Transoceanic vessels are constantly increasing in size due to necessity of carrying more and more goods. Growth in volume, increased ports of call, and increased size of vessels are used to determine how many tug boats, barges, dry docks, repair facilities are needed to support the port. The 2007 Maritime Support Services Study found that between 2002 and 2005, U.S. ports carrying capacity grew by 4.3 percent per year. If this growth rate continues, by 2016, the U.S. would see an 80 percent increase in volume. New York's share is increasing relative to the nation with a 5.1 percent average annual growth rate. "The maritime support services industry of the Port (of New York and New Jersey) will need to invest in services at a higher rate than the rest of the nation to match its faster growth rate" (SUNY 2007, 55).

Brooklyn's waterfront neighborhoods host some of most important marine support facilities in key locations, including the Red Hook Container Terminal, Brooklyn Marine Terminal, Brooklyn Navy Yard, Bush Terminal, South Brooklyn Marine Terminal, and an array of others. Location in Brooklyn is of critical importance because the efficiency it grants minimizes vessel down time and lost revenue. In sum, preserving waterfront property for marine industrial expansion based on projected increased trade volume fits into a model we could create based on Fawcett's 'possible future activity states.' Brooklyn would do well to plan for this as a plausible scenario, especially where vacant or underutilized waterfront property exists.

#### USE THE PROPER TOOLS AND DOCUMENTS

The government's tools for implementation are of key importance because they can be selected based on the nuances of the situation at hand. Regulations that are in place were created as interventions because the system was deemed inefficient without them. As David Throsby explains in "Making Preservation Happen: the Pros and Cons of Regulation," the certainty and flexibility that the use of regulations can yield. "Regulation, provided it can be enforced, delivers outcomes with certainty. When the public interest is best served by a clear and predictable outcome, subject neither to negotiation, nor concession, nor special dealing, then regulation by be indicated" (Throsby 1997, 40). Regulations can ensure compliance, but they can also be flexible because they can be invoked and repealed relatively quickly and easily. Especially in cases of unforeseen circumstances, governments can make transitory use of direct controls to ameliorate the situation. Even if they are inefficient overall, regulations can be used temporarily to forestall demolition of structures or unprecedented construction before it is properly vetted. This solution is often less expensive and easier to implement than changing a tax structure for example, and can be enforced immediately (Throsby 1997). Tools themselves are both agents and subjects



of change. They can be self-determining instigators, they can be set up as conditions to address (un)anticipated shifts, they can be altered to deal with the unexpected, or they can be created and invoked quickly against exogenous shocks.

Planning documents as visions and guidelines for development have been discussed throughout this research and operate mainly with the tool of *information*, though they usually include proposals to use others. Results have been varied and where ineffective, the city should look to more forceful tools. The community planning 197-a process has shown to be effective in activating a constituency but has widely varying degrees of effectiveness in outcome. This is partially a result of the lack of any binding or incentivizing program for the city and economic development strategies to adhere to it. The *Comprehensive Waterfront Plan* has also shown to be a catalyst for solidarity and action in city-wide waterfront goal-setting since its update process began in 2008.

The municipal planning process itself sparked interest in the waterfront, but much focus was inspired by the influence of the Municipal Arts Society and other outspoken non-profit groups who advocate for historic preservation and industrial retention. Officials in high levels of city government including the Deputy Mayor have now placed waterfront issues at the forefront. Though the *Comprehensive Waterfront Plan* is not binding, there is a moral authority that goes along with the zeitgeist. Many city agencies are now involved in waterfront issues, a phenomenon which exemplifies the power of the *information* tool. If however, a new mayor were to take office, the fact that the plan carries no legal authority means it could be scrapped instantaneously. This is where information can be most efficacious; perhaps the permeation of these ideas and values through a multiplicity of government agencies and the residents of the city surpasses the need for legally binding text.

## **THE FLUID EDGE**

The waterfront is the embodiment of the city in flux. As a site for urban activities at their most intense, it is the stage to the drama of an ever-transforming world. Political battles, human desires, nostalgia, and necessity for means of survival emote the story. Competition for land markets and global flows of capital provide the backdrop. Uncertainty is a constant that looms in every scene. This uncertainty can be reconciled with planning for adaptability, encouraging that which is working well and trying something new where the past has failed.

Looking to Brooklyn as a case study, we can see the various trajectories development can take. Practices such as property-led development are seemingly ingrained into our way of thinking, but in reality are trends subject to political and institutional arrangements. Policies

such as zoning are so ingrained, they are amended when a critical mass is reached but not questioned as an institution. Adding flexibility to deeply entrenched practices seems to be a trial and error process. In Greenpoint-Williamsburg, a change in zoning designation was used to adapt to changing conditions. While it worked in some aspects, in others it did not. The change from manufacturing to mixed-use and residential zoning successfully provided much-needed housing for thousands of New Yorkers. It officially opened up a formerly off-limits waterfront for the community to enjoy and provided more recreational space than ever before. It put an end to the concerns of siting of undesirable public facilities, at least in Greenpoint. It brought increased investment into the neighborhood, though some might argue too much. At the same time, it dispersed a thriving creative cluster by displacing numerous small manufacturers. In Red Hook, it took an immutable blunder of the highest order for the city to recognize the absolute necessity of its own waterfront for marine industry and New York's importance in global trade.

The waterfront is the node where the city meets the world and conversely, the marginal neighborhood on the edge of the city. It is a hub in the global flows of capital and labor, and it is the walled-off edge-land of no trespassing, peripheral in the psyche of its own residents. Its very duality lends itself to conflict and uncertainty. Being able to adapt both spatially and temporally to unforeseen circumstances, whether economic crises, depopulation, gentrification, contamination or a host of other phenomena, takes careful planning. Recognizing the value of the site scale and the waterfront as a whole is essential. We can recognize the features with which it is endowed, both natural, such as deep water or constructed such as street grids; the intangible strengths that underlie, such as economic diversity and innovation clusters; and the fact that values differ across interest groups and generations. To be able to retain the waterfront's value by adapting under adverse conditions, it is paramount to first have a detailed understanding of what creates that value. Like a distant object looming on the horizon, the uncertain and the unforeseen are not so formidable if we plan for their imminent arrival.

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