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Port of call or port of conflict: the evolution of the port of New York and New Jersey, port-city relationships, and the potential for land use conflicts on the Newark bay waterfront

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ABSTRACT

PORT OF CALL OR PORT OF CONFLICT: THE EVOLUTION OF THE PORT OF NEW YORK AND NEW JERSEY, PORT-CITY RELATIONSHIPS, AND THE POTENTIAL FOR LAND USE CONFLICTS ON THE NEWARK BAY WATERFRONT

by
Colette Santasieri

This dissertation, a case study of the Port of New York and New Jersey, covers three major research topics: 1) the evolution of the port spanning a period of over 200 years; 2) the relationship between the port (and the Port Authority of New York and New Jersey) and five municipalities on Newark Bay; and 3) the potential for land use conflicts between the commercial port operations and redeveloping waterfronts for non-industrial uses.

Research about the historical evolution of the Port of New York and New Jersey centers exclusively on the waterfronts and facilities on the Hudson and East Rivers and Upper New York Bay. Sources of information include books, news articles, journal articles, government reports, maps and photographs. The contemporary port-city relationship is studied with respect to the port and the Port Authority, and the municipalities of Elizabeth, Newark, Kearny, Jersey City and Bayonne. Sources of information include news articles, government reports and interviews with local elected officials and staff and representatives from advocacy groups, state agencies, and businesses. Potential for land use conflicts in the Newark Bay area between the commercial port operations and redeveloping waterfronts for non-

industrial uses is explored using the same sources as topic 2, with the addition of journal articles and site observations.

In this research, the Port-city Evolution Model by Hoyle is tested on the evolution of the Port of New York and New Jersey and is found to be too general and attends only to the relationship between one port and one city. The scale, scope and level of complexity of the Port of New York and New Jersey do not fit the model's general framework. A new model, derived from this research, captures the evolution of the Port of New York and New Jersey, taking into account the complexity of this port, which has: multiple cargo handling terminals in multiple municipalities in two states; multiple and different port-city relationships that have several relational aspects; and multiple forces shaping the port's evolution. Analysis of the relationship between the port (and the Port Authority) and five Newark Bay municipalities reveals dynamic, multifaceted associations characterized not only by spatial and functional aspects, but also by economic, political, and societal aspects.

The final stage of Hoyle's Port-city Evolution Model suggests that port-city associations are being renewed. One aspect of the contemporary port-city relationship is conflict between an operating port and redeveloping waterfronts. Research on the Newark Bay area reveals no observable or reported conflicts. However, the potential for conflict exists. Future conflicts could include daily friction from incompatible land uses and loss of waterfront property for commercial maritime use. These conflicts can be exacerbated by

the multiplicity of stakeholders involved in waterfront development and port operations.

The Port of New York and New Jersey Port-city Evolution Model, derived from this study, adds to the body of literature regarding not only how ports have grown and changed over time but also the causes and consequences of that growth and those changes. This dissertation extends Hoyle's general and narrowly focused model. It is a comprehensive account of the evolution of the Port of New York and New Jersey that weaves together myriad political, economic, regulatory, commercial, global and societal events, issues and actions into a complex tale. The complexity of this tale mirrors the complexity of this port's history and conditions in 2011.

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by
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PORT OF CALL OR PORT OF CONFLICT: THE EVOLUTION OF THE PORT OF NEW YORK AND NEW JERSEY, PORT-CITY RELATIONSHIPS, AND THE POTENTIAL FOR LAND USE CONFLICTS ON THE NEWARK BAY WATERFRONT

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To my husband Mark - the best thing that ever happened to me - for his unwavering love and support

To my daughters Andi and Maria - my pride and joy - who provide me with endless reasons to feel loved and be happy and proud

To my father, Daniel L. Creange whose greatest advice to me was “Never be afraid to ask questions.” I took that advice to heart.

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PART I: FRAMING THE DISSERTATION

CHAPTER 1

INTRODUCTION

1.1 Objective

This research is a case study of the Port of New York and New Jersey and redeveloping waterfronts in the cities of Newark, Elizabeth, Jersey City and Bayonne, and the Town of Kearny that all lie on Newark Bay in New Jersey. The research, analysis and results reported herein center around three major themes:

1. The evolution of the Port of New York and New Jersey. A major component of this research involves a test of the Port-city Evolution Model (Hoyle, 1998) using data on the evolution of the Port of New York and New Jersey. The dissertation author's hypothesis is that the Port-city Evolution Model is too general to explain the nuances of the development and growth of the Port of New York and New Jersey.

2. The relationships between Port Newark-Elizabeth-Port Authority Marine Terminal (and its owner, the Port Authority of New York and New Jersey) and the five Newark Bay municipalities listed above. The Port-city Evolution Model focuses on the spatial and functional aspects of the port-city relationship. The dissertation author's hypothesis is that the port-city relationship consists of more than spatial and functional aspects; it is multifaceted. The research identifies and assesses the characteristics of the current relationships between Port Newark-Elizabeth-Port Authority Marine Terminal (and its owner, the Port Authority of New York and New Jersey) and the five Newark Bay municipalities.

3. The potential for land use conflict between Port Newark-Elizabeth-Port Authority Marine Terminal and redeveloping waterfronts for non-industrial uses on Newark Bay. Most of the empirical research and the literature regarding waterfront redevelopment are about waterfronts that have been abandoned by port operations. Port abandoned waterfronts along the Hudson River have indeed been redeveloped with residential, retail, entertainment and recreational uses. However, in this case study, research on the potential for land uses conflict focuses on redeveloping waterfronts *within* the confines of a working harbor and adjacent to an operational port complex.

The Port of New York and New Jersey is the largest seaport on the east coast of the United States and the third largest port in the country (The Port Authority of New York and New Jersey [PANYNJ], 2010, April). Port Newark Elizabeth-Port Authority Marine Terminal, the major commercial maritime complex of the Port of New York and New Jersey, is owned and managed by the Port Authority of New York and New Jersey, and is located in the cities of both Newark and Elizabeth on the shores of the Newark Bay (see Figure 1.1).

This research adds to the current understanding of port evolution, port-city relationships and the potential for land use conflicts between ports and redeveloping waterfronts. While this dissertation presents three distinct stories, common threads run through them including changes in waterfront land use, stakeholder roles, authority and control, economic forces, politics and quality of life issues.

Figure 1.1 Newark Bay study area.

Source: Base map- New Jersey Department of Environmental Protection and New York City Department of City Planning GIS Files.

1.2 Background

Ports - gateways to cities providing goods for the populous - have had a long evolutionary history and varied relationships with cities. Like siblings, ports and cities expanded and developed together. In their developmental years (generally through the 1800s), their relationship was one of mutual need: ports needed land for existence, expansion and cargo storage as well as laborers to work the docks. Cities needed ports for the goods they provided citizens and for economic well being. But as each grew, their interdependence turned to adolescent independence (generally through the 1900s). Today, as grown entities, their relationship has once again changed, in some cases have been renewed, but in many ways remains strained. Conflicts have arisen regarding land use along waterfronts near operating ports. Ports are seeking to expand and improve connections to the hinterland. Cities are seeking to gentrify, re-image and redevelop waterfronts with residential, retail, recreation, commercial, and entertainment uses. Many ports are feeling the pressures of gentrification and fear potential negative effects of waterfront property being converted to non-industrial uses. While many city governments favor the conversion of industrial zones and the redevelopment of waterfront property for residential, retail, recreation, commercial and entertainment activities, port authorities, port facility owners, and port business associations are concerned that once such property is no longer zoned for industrial use, it will be impossible to return it to cargo-handling activities (Mongelluzzo, 2007). Some ports have been successful at

holding such conversions at bay, for now, while other ports are losing the battle and fear economic repercussions.

Ports have evolved from simple, shoreline areas for loading and offloading crates of cargo to contemporary large scale post-industrial zones (Hoyle Pinder, 1981). Beginning before medieval times, as evidenced by archeological research along the Thames River in England, ports have served as commercial gateways and economic hearts of settlement economies (Milne Hobley, 1981 in Hudson, 1996; van Dijk Pinheiro, 2003). Maritime innovations, such as increased ship size and cargo handling capacity, cargo handling mechanisms, and construction of canals and railways providing a connection between the port and further outlying areas have aided in not only bringing more goods to the port area s population, but also in reaching well beyond those original settlements (Rodrigue, Comtois, Slack, 2006). Globalization has resulted in world trade reaching double digits in recent years (Hayuth, 2007). Technological advancements continue to affect the growth and operations of ports and port industries and include Post-Panamax ships, a new generation of vessels which carry more than double the amount of containers as the last generation of ships. Key changes in computerization and communication have changed the way ports and port-related industry conduct business, allowing for industry headquarters and offices to locate away from the port (Hayuth, 2007).

From the birth of commercial cargo shipping to contemporary times (2010), the relationship between the port and its city has changed. Once a center of urban activity, the port has been transformed into a gateway to the

global market and a link in the global supply chain. The city, which once derived its socio-economic attributes from commercial maritime activity, is now supported by various other economic sectors (Hilling, 1988).

Ports operating in this time of globalization must continuously adapt to changing technologies and economic trends in order to remain competitive. A port's ability to compete in the global economy depends not only on its onsite operations but also on its landside capabilities. Port customers seek ports that minimize handling and transport times, thereby minimizing delays and costs. Fierce competition exists between ports; the ports that move goods quickly to their final destinations, at the most competitive prices, remain viable (Loveless, 2001). Cities also exist in a competitive market, continually striving to create a high quality of life for its residents, while attempting to attract new residents, visitors and businesses that would strengthen their economic base.

The port-city interface is defined as a "geographical line of demarcation between port-owned land and urban zones, or an area of transition between port land uses and urban land uses" (Hoyle, 1989, p. 429). It is an area where port activities and urban activities are connected, coordinated, and contested. The waterfront, located within the port-city interface, is an area where many port and industrial properties are being redeveloped. Waterfront property is attractive to both ports and gentrifying cities and competition over use of waterfront property is increasing, as are land use conflicts between working ports and waterfront properties redeveloped for non-industrial uses.

CHAPTER 2

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.1 The Port-city Evolution Model

Research on the evolution of ports in various disciplines has resulted in a range of theories (Hoyle, 1989, 1998; Norcliffe, Bassett Hoare, 1996; and Hayuth, 2007). The research conducted for this dissertation is framed by the Port-city Evolution Model (Hoyle, 1998). This model was chosen as a conceptual framework because it presents a structured and sequential basis for understanding the spatial progression of ports, factors that influenced port growth, and the connection between ports and cities. This model provides a foundation from which all of these issues could be explored.

Hoyle s model contains six distinct stages of a commercial port s growth with corresponding port-city inter-linkages (Hoyle, 1998). The model (see Figure 2.1) (Hoyle, 1998) presents the growth of a commercial port from ancient medieval times to 2000 and focuses on the spatial and functional aspects of the relationship of a given port to the city where it is located.

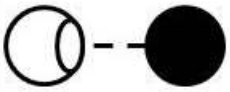
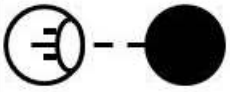
Stage	Symbol City Port	Period	Characteristics
I Primitive port/city		Ancient, medieval to 19th century	Close spatial and functional association between port and city
II Expanding port/city		19th-early 20th century	Rapid commercial/industrial growth forces port to develop beyond city confines
III Modern industrial port/city		Mid-20th century	Industrial growth and introduction of containers/RoRo require separation/space
IV Retreat from the waterfront		1960s-1980s	Changes in maritime technology induce growth of separate industrial maritime areas
V Redevelopment of the waterfront		1970s-1990s	Large-scale modern port consumes large areas of land/water space; urban renewal of original core
VI Renewal of port/city links		1980s-2000+	Globalization and intermodalism transform port roles; port-city associations renewed

Figure 2.1 The Port-city Evolution Model.

Source: Adapted from (Hoyle, 1998).

The Primitive Port□City stage extends from ancient□medieval times to the nineteenth century. A □close spatial and functional association between the city and the port□characterized the Primitive Port□City stage (Hoyle, 2000b, p. 405).

The Expanding Port City stage, from the nineteenth to the mid-twentieth century, is characterized by rapid commercial and industrial growth that forced the port to expand by constructing wharfs and facilities so more cargo could be loaded and unloaded piece by piece (see Figure 2.2). This expansion affected urban land use patterns in that more land was required for port operations (Hoyle, 1988).

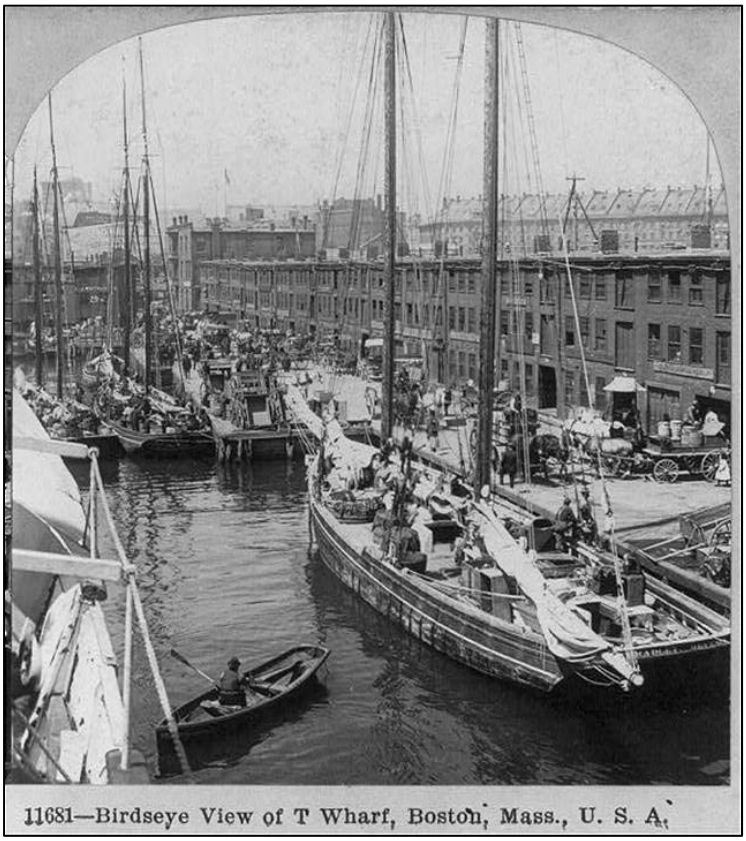


Figure 2.2 *Bird's-eye view of T Wharf, Boston, Mass*. 1910. Photograph. B.L. Singley (Keystone View Co.). The photograph illustrates how boats loaded with cargo moored along long wharves and unloaded onto waiting horse drawn carts.

Source: Reproduction Number: LC-USZ62-62629, Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA.

The Modern Industrial Port City stage, in the mid-twentieth century, bears witness to exponential port-related industrial growth, especially with oil refining and the introduction of new technologies, such as containerization, requiring more land (see Figure 2.3). During this stage, port and urban functions began to separate weakening the historic port-city interdependence (Hoyle, 1988).

Figure 2.3 Port of Miami, Florida. 1995. Photograph. This photograph shows a modern and extensive port facility constructed away from the city's downtown. Specialty cranes remove cargo containers from ships to awaiting vehicles for transport.

Source: http://www.miamidade.gov/portofmiami/gallery/port2.asp.

Hoyle's fourth stage, Retreat from the Waterfront, spans from the 1960's to the 1980's. Technological advancements in the maritime industry, as well as significant increases in the amount of land required for container handling equipment and container storage caused port facilities to move downstream from the central city where larger land areas and deeper water bodies were available (Hoyle, 1988). This growth in port facilities and freight movement could not occur

within the confines of the center city. The piers and wharfs that once housed the bustling port operations were abandoned (see Figure 2.4).

Figure 2.4 Abandoned pier, Hoboken. 2011. Personal photograph by author. Photograph of a pier once used for the transference of cargo from ships on the Hudson River to the shores of Hoboken, New Jersey.

Movement of the cargo handling functions downstream, away from the center city, caused a "spatial and functional vacuum" in the city (Hoyle, 1988, p. 14). As port facilities moved downstream, acres of abandoned waterfront land became available for urban renewal (Hoyle, 1988)

A strong spatial and functional linkage between port and city characterized each of the first three stages of the Port-city Evolution Model. In the fourth stage, that strong spatial and functional relationship loosened. Hoyle's fifth stage, the Redevelopment of the Waterfront, extends from the 1970s through the 1990s and portrays the port and the city as two distinct entities whose traditional spatial and functional aspects were no longer intertwined. On the maritime side, during this stage, large scale modern ports, consuming expansive areas of land and water outside of the urban core, were created (see Figure 2.5). Cities began to

transform the port-abandoned waterfronts, which had negative images, to meet the needs of their citizens and to cure the ills of their industrial past (see Figure 2.6).

Figure 2.5 Port of Los Angeles. 2004. This aerial photograph shows a large scale modern port consuming expansive areas of land.

Source: http: en.wikipedia.org wiki File:Port of LA.jpg.

Figure 2.6 Pier 39, San Francisco, California. This photograph shows the current retail, recreational and entertainment uses of former maritime pier.

Source: PIER 39 Public Relations Department.

Hoyle uses port activities in Marseille, France as a case in demonstrating the first five stages of the Port-city Evolution Model. The coastal settlements in Marseille, located on the Mediterranean Sea, were served by a simple quay in 1511 and continued to grow into the Vieux Port in this primitive port□city stage. By the mid-1800s, the expanding port□city stage was in full swing with the establishment of railways, the invention of steamships, the opening of the Suez Canal, and severe congestion within the Vieux Port, causing rapid growth and expansion of port activities and facilities to the north of the port□s original location. The modern industrial port□city and retreat from the waterfront stages in Marseille were characterized by the establishment of a maritime industrial development area at Fos in 1965. The Port of Marseille-Fos became the region□s maritime

center for bulk cargo and container traffic. By 1988, the port-abandoned waterfront of the Vieux Port was redeveloped for water-based recreational facilities (Hoyle, Pinder Husain, 1988).

The final stage of Hoyle s model is Renewal of Port City Links. Since the 1980 s, globalization and intermodalism have transformed ports and their role in the global economy. City governments have encouraged the redevelopment of waterfront properties into viable entities whose activities and economic foundations have nothing to do with the commercial maritime industry. Hoyle indicates in the final stages of this model that port-city associations are being renewed (Hoyle, 1998). According to Hoyle, as the 21st century unfolds globalization of trade and growth of intermodal transport have encouraged a redefinition and frequently a relocation of port functions. Re-thinking port-city relations now involves a renewal of links, re-convergence of policy and new forms of cooperation regarding the port-city interface (Hoyle, 2006, p.6).

The Port-city Evolution Model is used in several ways to frame this research. First, the Port-city Evolution Model is used to frame the discussion of the literature reviewed for this dissertation and presented in this chapter (2). Secondly, the model is used to frame the research conducted on the historic evolution of the Port of New York and New Jersey. The evolution of this port is presented in Chapters 4-8. The applicability (or lack thereof) of this model to the Port of New York and New Jersey is discussed in Chapter 9, as is presentation of a Port of New York and New Jersey Evolution Model inspired by the Port-city Evolution Model. The Port-city Evolution Model is used to frame the discussion

of the contemporary port-city relationship between a portion of the Port of New York and New Jersey (Port Newark Elizabeth-Port Authority Marine Terminal) and the five New Jersey municipalities on Newark Bay. This is presented in Chapter 12. Finally, the last stage of the Port-city Evolution Model is used to frame the discussion of conflicts between an operating port and redeveloping waterfronts for non-industrial uses which is presented in Chapter 13.

2.1.1 Scholarly Critique of the Port-city Evolution Model

Hoyle portrays technology as the driving force behind the evolution of the port (Hoyle, 1989). A number of scholars have critiqued Hoyle s model suggesting that various factors in addition to technology have played a role in the evolution of ports including capitalism, globalization and environmental regulations (Van Dijk Pinheiro, 2003; Gilliland, 2004; Norcliffe, Bassett Hoare, 1996; Merckx, Notteboom Winkelmans, 2003; Boschken, 1985; Hayuth, 2007).

Van Dijk Pinheiro (2003) suggest that Hoyle s Port-city Evolution model is a simple stage theory that does not account for varying geographic, technological, political and monetary differences between port cities. To make this case, they undertook an analysis of European port cities and provided a comparison of how and why ports were reconstructed during the nineteenth century. In London, tidal fluctuations (geography) required construction of state-of-the-art tidal docks and locks for loading and off-loading ships (technological). This was accomplished with an infusion of funds from city banks and private businesses (political economic) and led to London possessing the finest port

facilities in the world. However, when London was pursuing this state-of-the-art reconstruction, port cities in Lisbon and Venice were still employing barges mid-stream to load and off load ships, a practice that hampered their economic prosperity (van Dijk Pinheiro, 2003). Thus, during the same time period (mid- to late-1800s), these ports developed at different rates due to local political, geographical and economic forces. Hoyle s model does not account for local political, geographic and economic forces.

Using empirical research about the port of Montreal from 1830 to 1914, Gilliland (2004) acknowledges technological advancement as a driving force for port evolution but demonstrates that the impetus behind such advancements was capitalism. The periodic redimensioning (Gilliland, 2004, p. 450) of the port of Montreal was a result of a continual desire to reduce the turnover time of capital (Gilliland, 2004, p. 468). Each technological change, whether it was the replacement of wooden ships with iron steamships, wooden docks with wharves and finger piers, or narrow channels and canals with widened waterways, was a result of investors, ship owners, factory owners, land owners and railway owners all caught up in their own level of competition, each one continually striving to enhance circulation to expand their market base, lower costs and increase profits (Gilliland, 2004, p. 469).

Whereas Hoyle suggests that the port retreat from the center city waterfront was due to technological changes, Norcliffe, Bassett and Hoare (1996) point to post-Fordism economic conditions and competition as the reasons for the retreats. Norcliffe et al. suggest that the increase and specialization of

commodity exchange, the globalization of the marketplace, and intense competition between ports led to the increase in the scale of port operations and the need for ports to be free of the confines of the inner city (Norcliffe, Bassett Hoare, 1996, p. 128).

Boschken (1985) suggests that environmental regulations enacted in the late 1960s and early 1970s, as well as the economic consequences of complying with such regulations have, to some extent, been the driving force behind port evolution in the mid to late 1900s. Whereas Hoyle suggests that technological advancements, including the advent of containerization led to port modernization in the 1960s to 1980s, Boschken (1985) argues that the need to comply with environmental regulations determined whether or not a port modernized from general cargo facilities to modern container facilities in those decades. The emergence of environmental regulations regarding water quality, wetlands and aquatic species required ports to plan and operate differently than they had before. Prior to the enactment of certain US and subsequent state environmental regulations in the late 1960s and early 1970s, when port authorities wanted to expand the ports, the process of dredging and filling could occur without regard to the environment. Subsequent to the enactment of these regulations, port authorities and port owners were required to comply with regulations when dredging and filling which added costs above and beyond the expansion projects, delays in planning and construction, new regulatory oversight, and the involvement of public agencies and stakeholder groups in port planning

decisions. While port expansion was required for a port to remain competitive, such expansion triggered compliance with environmental regulations.

Boschken (1985) contends that "environmental regulation may have acted as a marginal co-incentive for modernization and did so because container technologies caused differentially lower environmental concern than other types of harbor development" (Boschken, 1985, p. 279). Port authorities reasoned that rather than expanding the port's footprint by dredging and filling, developing existing port space with new container terminals was likely to trigger less environmental scrutiny. Boschken's (1985) research on six US west coast ports revealed that the ports that invested in container technology within the port's existing footprint, rather than expanding land surface through dredging and filling, remained more competitive in the market. Boschken (1985) concluded that environmental regulation, not the technology itself, was the impetus for ports to evolve into more technologically efficient entities.

2.1.2 Critique of the Port-city Evolution Model in this Study

In addition to these critiques, the author of this dissertation offers a few more general criticisms. First, the model does not fit all cases. Second, Hoyle does not provide an explanation of the Renewal of Port-City Links stage (Hoyle, 1998) and third, Hoyle's port-city relationship is based on spatial and functional aspects and does not consider other aspects of a port-city relationship. Each of these points is discussed below.

Not all ports seem to fit the Port-city Evolution Model. One example is the Port of Busan in South Korea, one of the busiest container ports in the world. In

a study conducted by Fremont and Ducruet (2005), the evolution and current (2000s) constraints of the port are discussed. Hoyle's Primitive Port-City stage extended from the ancient-medieval times to the nineteenth century, yet the Port of Busan was established after the Korean War. The Port of Busan became a container port in 1975, which is consistent with the time frame of Hoyle's Modern Industrial Port-City stage, but this port did not move downstream to accommodate the spatial and functional requirements for containerization handling, storage and movement which Hoyle suggests in his Retreat from the Waterfront stage. Rather, it remained in its inner city location. Whereas, Hoyle's model claims a Retreat from the Waterfront in the 1960s to 1980s due to spatial constraints within the inner cities, the Port of Busan is experiencing those constraints and that retreat in the early 2000s. Spatial constraints include: the competition of land for port-related and non commercial maritime activities; inadequate space at or near the port for container storage; and inadequate transportation infrastructure leading to roadways being congested with a mixture of cars, and trucks carrying 85 percent of containers from the port. In an effort to break away from urban constraints, a new container port was constructed in 2005 west of Busan Bay under the control of a newly established Busan Port Authority which is independent of the federal maritime ministry as well as the local government (Fremont & Ducruet, 2005). The time frames associated with the stages of Hoyle's model are not applicable to all ports, especially those in developing countries, as evident in the Port of Busan.

Hoyle does not thoroughly define his final stage - Renewal of Port-City Links. While he characterizes this stage as a transformative stage as a result of globalization and intermodalism and indicates that port-city relationships are being renewed, he offers no thorough explanation or empirical research. Hoyle indicates that "many cityports are now looking for fruitful and positive cooperation involving a wide range of participants, in the interests of capitalizing on traditional port-city association, modern city-port interdependence, specialization within urban economies and competitive port functioning" (Hoyle, 2006, p. 10) but does not provide specific examples.

One aspect, of this "renewal" may be port-city tensions and land use conflict. Merckx, Notteboom and Winkelmans (2003) provide insight into tensions at the Port of Antwerp in Belgium. Research regarding the Port of Antwerp and an ongoing waterfront redevelopment project, t'Eilandje, revealed that the value of waterfront property for housing and commercial activities surpassed the value of the same property for port-related activities, creating tensions between the city government and the Antwerp Municipal Port Authority which owned the land. A multitude of stakeholders, including the city of Antwerp government, the Antwerp Municipal Port Authority, the national government, the redevelopment project team, development companies and citizens with varying ideas, values and interests also added to the tensions regarding waterfront redevelopment.

The Port-city Evolution Model is based on spatial and functional aspects of the port-city relationship. Hoyle contends that the port-city relationship began as a "close spatial and functional association" (Hoyle, 2000b, p. 405) but as this

association weakened, port and city functions separated and now, in contemporary times (2010), the port-city relationship has been renewed. Certainly, the port-city relationship has spatial and functional aspects. The spatial aspect pertains to physical patterns and geographical connections. The port-city functional association pertains to specific activities and operations of the port as they relate to the city, and vice versa. Essentially, the port provides the transference of goods from shippers to city markets. Cities provide a means of access to and transport of such goods.

This model, however, does not take into account the many other aspects of port-city relations, such as economic, political and societal ones. Economic aspects of the port-city relationship pertain to the production, distribution and use of income, wealth and commodities. The interdependence or independence of their respective economic structures influence the port-city relationship. Political aspects of the port-city relationship pertain to the system of governance and the exercise of power. Ports and cities are both economic entities and are managed and affected by political factions, laws and regulations. Societal aspects of the port-city relationship pertain to the welfare of residents within the port city. Ports and cities are subject to and influenced by societal concerns such as jobs, environmental quality, and safety and security. (Sections 2.2 and 2.4 provide more discussion of the various aspects of the port-city relationship.) (An assessment of the Port-city Evolution Model using the Port of New York and New Jersey is presented in Chapter 9.)

2.2 Aspects of the Port-city Relationship

In this section, Hoyle's Port-city Evolution Model, Stages 1 through 4, is used as a framework for exploring various aspects of the port-city relationship and how that relationship has changed. This overview serves as a framework for understanding the contemporary port-city relationship.

The Primitive Port City, Expanding Port City, Modern Industrial Port City, and Retreat from the Waterfront stages extend from ancient medieval times to the 1980's (Hoyle, 1988). During this time, the port evolved from a simple area for manually off-loading cargo to thousands of acres of sophisticated, computerized equipment, offloading thousands of containers per ship. Port and city moved from interdependency to separation (Hoyle, 1988).

A discussion of the five aspects of the port-city relationship as they apply to Hoyle's first four stages is provided below. While these aspects of the port-city relationships are addressed separately, it is evident that they are closely related. One cannot clearly isolate each aspect of the port-city relationship because these aspects are so closely intertwined. For example, retail establishments, which provided goods to the mariners, are described as an example of the functional aspect of the early port-city relationship, yet one could argue that those establishments exemplify economic aspects of the port-city relationship. Or, one could argue that the close proximity of these establishments to the port is an example of a spatial aspect of the port-city relationship. Subjective distinctions were made for the purposes of the port-city relationship discussions.

2.2.1 Spatial Aspects

A port lies at the interface between a waterway and land. Historically, land situated at the river's headwaters provided a natural setting for establishing a port. Many of today's cities were established by port operations on their rivers, including London on the Thames River (Rodrigue, Comtois, & Slack, 2006). Conventional cargo transport required ports and cities to have strong spatial ties. Land adjacent to the harbor provided space both for maritime-related activities and manufacturing industries that used the raw materials transported through the port.

With the construction of rail and port-related facilities and factories in the mid-1800s, the character of the port changed. These facilities essentially walled off the navigable water from the rest of the city. As technology improved and demand for cargo increased, the space needed for efficient port operations grew. Deeper waters, more land, and stronger transportation connections were essential for port growth, and many urban centers could not accommodate such requirements. The ten-fold increase in land size required for container handling equipment and container storage in the Modern Industrial Port City and the Retreat from the Waterfront stages, for example were far too great for the port to remain within the limits of the inner city waterfront (Norcliffe, Bassett & Hoare, 1996). Faced with such spatial constraints, port facilities relocated downstream, abandoning the center city waterfront. The Port of Rotterdam provides an example of port growth and movement beyond the original port's spatial

boundaries. During the nineteenth century, the Port of Rotterdam - the sixth largest container port in the world - spread from its original city center location, downriver along the Rhine towards the North Sea due to industrial growth in its hinterland; then onto reclaimed land south of the Rhine in the 1960s due to a growth in the oil refining and petroleum industry; and then, with the advent of containerization, to the areas of Waalhaven and Botlek in the 1970s (Rodrigue, Comtois Slack, 2006).

In addition to the land occupied by the port footprint, spatial needs also include connection to the port s hinterland: the area over which a port draws the majority of its business (Notteboom Rodrigue, 2007, p. 52). As populations grew and transportation technology improved the expanse of the port s hinterland increased. For ports to remain viable, port cities have had to continually accommodate and facilitate the movement of goods via railways, highways and waterways (Wang, et al., 2007).

2.2.2 Functional Aspects

The Functional Aspects pertain to specific port and city activities and how port and city activities relate to each other. Historically, the prime function of a port was to provide goods to the surrounding settlement. A prime function of the city was to provide the maritime community with a means to market such goods as well as to provide the mariners with the goods and services they needed. Ocean and river vessels offloaded cargo directly *into* the city, with the waterfront itself serving as a marketplace for the exchange of goods (see Figure 2.7).

Figure 2.7 *New York City. View along waterfront on West Street.* 1904. Photograph. The photo shows ships (upper left side), warehousing (left side), and commercial and residential uses (right side), and horse drawn carriages hauling cargo in lower Manhattan at the turn of the century.

Source: Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA [reproduction number LC-USZ62-42231].

The city s stores provided mariners with maritime necessities such as food, rope, fuel, canvas, wire, equipment, and paint. Agents of the maritime industry (including brokers, agents, surveyors, insurers, and financial institutions) were located adjacent to the port as were boarding houses and taverns for sailors (Hillings, 1988). Thus the port-city functional relationship was one of interdependence. This association has changed over time as a consequence of population growth, advancements in maritime technology, the invention of new transport modes, and computerization, all of which greatly expanded the port s

market reach, increased its ability to move goods greater distances, and facilitated its capacity to operate port-related businesses from locations away from the waterfront.

2.2.3 Economic Aspects

Economic aspects of the port-city relationship pertain to the production, distribution and use of income and commodities. The economic vitality of a port city before and during the Industrial Revolution was dependent upon the economic success of its port. The port provided raw materials to local producers, goods to local customers, and employment to local citizens while the city housed mercantile businesses and provided port laborers (Norcliffe, Bassett, □ Hoare, 1996). During the twentieth century, the growing urban population in industrialized nations provided a steady source of laborers for growing port activities. However, the ports and their cities were growing in different directions. The economic structure of cities began to change, becoming more diversified and less dependent on the traditional port-related businesses (Notteboom □ Rodrigue, 2005; Ircha, 2002).

The loss of port-related industries and manufacturing, the closure of smaller cargo handling terminals, and improved technologies, all of which required fewer blue collar workers, resulted in a shift in the port-city economic relationship (Butuna, 2006). Urban economies began to rely on corporate headquarters, the health care industry, educational institutions, and governmental activities (Sieber, 1991) which were established away from navigable waters. Around the 1960s, the urban economy changed from a

working class, production-oriented one to a service-based economy that included white collar professionals. Young urban professionals and wealthy citizens relocated to the cities to live, to work, and for leisure activities. The once symbiotic port-city economic relationship was no longer evident in many port cities throughout the world (Pinho, Malafaya Mendes, 2002). A close port-city economic relationship, where the port set the economic agenda for the city, had changed. Port-produced goods and services were replaced by an economy of consumption (Norcliffe, Bassett Hoare, 1996). The cities were no longer dependent upon the ports for their economic stability.

2.2.4 Political Aspects

Political aspects of the port-city relationship pertain to systems of governance and the exercise of power. During the 1800s in many industrialized nations, the bourgeoisie engaged in trading and local businesses also controlled the port and the city (Gay, 1981). In the early nineteen hundreds, growing demand for port improvements, greater efficiency, and capital led to the creation of public port authorities. Small, privately-owned port facilities were consolidated under the auspices of a single public entity, such as the London Port Authority, the first of its kind, established in 1908 (Notteboom Rodrigue, 2005). As the port-city relationship changed in the mid-twentieth century, especially in terms of function and economics, the political priorities also changed. With a symbiotic port-city relationship, a common political view was evident- what was best for the port was best for the city. However, in changing economic times, the priorities of the city

government and the priorities of the port authorities diverge because port prosperity and city prosperity are no longer interdependent.

2.2.5 Societal Aspects

Societal aspects of the port-city relationship pertain to the life and welfare of residents within the port city. Societal aspects include: where and how people live, work, shop, and play; environmental quality; and safety and security. In port cities of industrialized nations in the nineteenth century, the working class lived close to the port and many of their basements and attics doubled as storage space for the newly arrived cargo. The elite also lived near the port where they operated mercantile-related businesses including insurance, finance, and consignments. As trade increased, so too did the population which ebbed and flowed with sailors who often stayed ashore for long periods working on the docks until their vessels were ready to depart (van Dijk Pinheiro, 2003).

Entertainment near the port included brothels and taverns serving the sailors and working class and nautical clubs serving the elite (Monge, 2004). Cargo carried into the city through the port met the retail needs of the city population (Hoyle Pinder, 1981). Dock workers, sailors and other laborers continued to live near the waterfront. Commercial enterprises, which catered to urban life, remained but by the late 1800s the once geographically integrated working class and elite began to separate. The busy port and associated businesses created an atmosphere of danger, dirt and colorful living. While the working class remained close to their jobs, the attractiveness of waterfront living waned for the elite. Separate neighborhoods for the merchants and

professionals emerged (van Dijk Pinheiro, 2003; Norcliffe, Bassett Hoare, 1996). Physical and social segregation emerged in the port city (Butuna, 2006). The mid-twentieth century bore witness to exponential port related industrial growth (Hoyle, 1988) and the growing urban populations provided a steady source of laborers for increased port activities. The early 1950s was the peak period of port employment at large ports in London and New York, each employing 50,000 dock workers (Notteboom Rodrigue, 2005).

Around the 1960s and 1970s, when port facilities moved downstream to accommodate automations in cargo handling, society's environmental conscience awakened. Abandoned waterfronts became a focal point for environmental movements in industrialized nations. Clean air and water, removal of pollution generating operations, public access to the water, and aesthetic waterfront qualities were all areas of concern (Hayuth, 1988). With the creation of the United States Environmental Protection Agency and National Oceanic and Atmospheric Administration in 1970, and enactment of the National Environmental Policy Act (1969), Clean Air Act (1970), and the Water Quality Improvement Act (1970), US waterways and waterfronts were afforded cleanup and positive reuse opportunities (Breen, 1994). Section 303 (b) of the Coastal Zone Management Act of 1972 gave US states control over their waterfronts, requiring each to enact coastal management programs that considered the ecological, cultural, historic and aesthetic values when developing the coastal areas (Hayuth, 1982).

As port operations expanded, safety became a common concern. The volume of goods being loaded and offloaded and the mechanized movement of that freight created an atmosphere conducive to accidents. During the nineteenth century, walls began to separate port operations in London and elsewhere from the city population to maintain public safety (Hilling, 1988; Norcliffe, Bassett Hoare, 1996).

2.3 Redevelopment of the Waterfront: Stage 5

In this section, Stage 5 of the Port-city Evolution Model, Redevelopment of the Waterfront, is used as a framework to explore the global phenomenon of redevelopment of port-abandoned waterfronts. The Port-city Evolution Model portrays the period of the 1970s to 1990s as a time when modern ports developed at some distance from the center city allowing for the redevelopment of these port-abandoned waterfronts (Hoyle 1989, 1998). Hoyle further expanded upon his Port-city Evolution Model with his Retreat, Redundancy, and Revitalization Model (Hoyle, 2000b) to focus on the linkage between the previous models phases of Retreat from the Waterfront and Redevelopment of the Waterfront. During the Retreat from the Waterfront stage, technological advancements and deindustrialization led port authorities to move port operations away from urban centers. A negative consequence of this movement was port-abandoned properties. In the Redevelopment of the Waterfront stage, port-abandoned properties were redeveloped with residential, recreational, retail, commercial, and entertainment uses. The interface between these two phases is highlighted by the public, public agencies and private entities interest in

changing a negative outcome (port-abandoned property) to an opportunity for resource reuse. In the process of redeveloping the waterfront, the stakeholders develop and refine various strategies. The final outcomes "reflect the balance between commercial interest and social goals, achieving the balance is often a source of conflict" (Hoyle, 2000b).

The redevelopment of waterfronts is a global trend (Hoyle, 1998). This phenomenon results from several factors including: freight handling and transportation technological changes; deindustrialization; people's desire for more leisure and recreational opportunities; environmental concerns; and urban economic shifts to corporate, information and service sector industries (Sieber, 1991). Post-Fordism economics has been a driving force behind the revitalization of port-abandoned waterfronts. The workforce became bifurcated with scientific, technical and managerial professions providing high wages to young professionals, and a service sector economy which created jobs for servicing those professionals. The abandoned waterfronts provided opportunities for the expenditure of newly accumulated wealth and led to waterfront development consisting of high-end residential units, recreational facilities, hotels and conference centers, retail establishments and tourist attractions (Norcliffe, Bassett & Hoare, 1996). Successfully redeveloped waterfronts have resulted in: revitalized urban economies, investments in real estate and infrastructure, improved environmental quality, renewed access to and use of waterways, the preservation and reuse of historic structures, and increased tourism (Jones, 1998). Redeveloped waterfronts have been completely transformed, leaving

little or no evidence of their commercial maritime or industrial past. Cities are no longer driven by the port and industry, but by a wider social and economic process, one of consumption rather than production (Norcliffe, Bassett Hoare, 1996).

The redevelopment of waterfronts comes upon the heels of port facilities moving away from urban centers. These redeveloped waterfronts are no longer spaces defined by port function. Instead, they are now spaces defined by a new culture of consumption (Monge, 2004). In North America, this trend of redeveloping port abandoned waterfronts has occurred in Baltimore (see Figure 2.8), Boston, New York, San Francisco, San Diego and St. Louis. Port cities worldwide have followed the North American model of redefining the waterfront s role in the city, reimaging the city, and creating a new service economy (Butuna, 2006). The London Port Authority s relocation of the Port of London downstream to Tilbury allowed for the redevelopment of the Docklands and Canary Wharf. The port cities of Halifax and Vancouver have created destination waterfronts, as have Singapore, Bombay, Calcutta and Cape Town (Ircha, 2002). In a review of successful US and British waterfront redevelopment projects, Jones (1998) concluded that their success is based upon a balance between facilities that address the economy and social aspects, public-private partnerships, and a comprehensive redevelopment strategy.

Figure 2.8 Baltimore National Aquarium. 2010. Photograph. The photo shows new uses (aquarium, recreation, retail) at a former port-abandoned waterfront.

Source: http: en.wikipedia.org wiki File:BaltimoreNationalAquarium.JPG.

While Hoyle places this phase of waterfront development in the 1970s and 1980s, many cities worldwide are only now in the early 2000s revitalizing their waterfronts. Port Adelaide in Australia, whose shipping activities moved to the outer harbor area in the 1950s, concurrent with the collapse of its manufacturing industry, is undertaking a ten year 1.5 billion waterfront redevelopment (The City of Port Adelaide, 2011; Oakley Rofe, 2006). True to the standard waterfront redevelopment formula (Sieber, 1991) the project includes upscale residential units, restaurants, retail, recreational activities, and tourist attractions. Promotional brochures and websites portray a waterfront which solves the problems of urban decline by transforming the physical, economic, and image of the Port Adelaide Waterfront (The City of Port Adelaide, 2011; Oakley Rofe, 2006).

Most of the empirical research regarding waterfront development focuses on waterfronts that have been abandoned by port operations. But there are cases where waterfronts are being redeveloped *within* the confines of a working harbor. The Victoria and Alfred Waterfront in Cape Town, South Africa is a good example of Hoyle's Retreat, Redundancy, and Revitalization Model. Maritime technologies and harbor expansion away from the origin of commercial port activities resulted in the underutilization of the Cape Town waterfront by the early 1980s. By 1984, Cape Town's Mayor Alderman Sol Kreiner formed committees to focus on waterfront redevelopment and attraction of tourists. The result is that waterfront redevelopment consisting of residential and service sector activities share the harbor with commercial operations, including tugs, ship repair facilities and a fishing industry. The new waterfront is touted as a success as it is the most popular tourist attraction in South Africa; has created over 15,000 new construction and development jobs that have been sustained for 10 years; and has created permanent jobs, albeit in mainly low skilled entry level positions in service sector industries. However, as this new development is within the confines of a working harbor, pressures from the Victoria and Alfred Waterfront on those commercial industries are beginning to be felt (Ferreira Visser, 2007). The land use conflicts that have arisen in this particular example provides some insight into the possible land use conflicts which may arise when redeveloping waterfronts for non-industrial use within the confines of a working harbor.

2.4 Renewal of Port-City Links: Stage 6

In this section, the final stage of the Port-city Evolution Model is used as a framework for exploring and understanding the contemporary port-city relationship. It also provides the basis for this dissertation's section on the potential for land use conflicts between redeveloping waterfront properties for nonindustrial uses and an operating port.

In the final stage of the Port-city Evolution Model, Hoyle characterizes the contemporary port-city relationship as "renewed" after ports and cities had gone their separate ways in the Retreat from the Waterfront and the Redevelopment of the Waterfront stages. While Hoyle provides very little explanation of this "renewed" association, other scholars, as well as situations occurring at many American port cities, now provide examples of contemporary port-city relationships. Apparently, in many ways, ports and cities in the United States are still separated in that each operates under different political mechanisms with different economic structures. However, a key aspect of the contemporary port-city relationship remains *spatial*, in that ports lie within city limits, albeit not necessarily in the central city, and port facilities and ancillary infrastructures are still physical components of the urban fabric. Thus, the port and the city cannot be fully separated.

A "renewed" association is not necessarily a friendly one. Land use conflicts between port operations and the need for ancillary infrastructure, and the city government's desires to redevelop waterfront property for non port-related uses are characteristic of this association.

In order to understand the contemporary port-city relationship and why land use conflicts may exist, it is important to understand that a myriad of stakeholders are involved in port operations, in city operations, and in the redevelopment of waterfronts: federal, state and local governments; port authorities; port and industrial associations; and community groups. Each has its own mission and priorities to advance its agenda and each has a role in the port-city relationship.

2.4.1 The Contemporary Port-City Relationship

Five aspects of the port-city relationship are evident in contemporary (2010) times. Just as the aspects of the port-city relationship were intertwined historically, aspects of the contemporary port-city relationship are still closely interrelated.

2.4.1.1 Spatial Aspects of the Contemporary Port-City Relationship. While ports and cities still have an inescapable spatial relationship by virtue of their proximity, many city governments no longer view port needs (such as waterfront access) as a priority (Hayuth, 1982). Land for operations and expansion, transportation connections and improvements, and port-related businesses are necessary for port viability. However, many ports must now compete for valuable waterfront property with other water dependent and non-water dependent uses (such as residential, retail, recreation, commercial and entertainment activities), because these land uses have become a priority for city governments. The port and the city, once interdependent, have now become competitive.

2.4.1.2 Functional Aspects of the Contemporary Port-City Relationship.

The port no longer serves only the needs of the local population. The Port of New York and New Jersey, for example, serves not only the almost 20 million in the local population, it also serves 80 million more people within a day's truck drive (Rodrigue, 2005). No longer is the port a terminus; it is a node along the global supply chain where cargo is moved from one form of transportation to another (Meyer, 1999). Whereas the waterfront area once served as a hub for port-related entities such as commodities brokers, insurance firms, and cargo handling facilities, advancements in computerization, communications, and transportation no longer require this close proximity. Thus, a close functional relationship between the port and the city is no longer necessary.

2.4.1.3 Economic Aspects of the Contemporary Port-City Relationship.

Cities have transformed the once negatively imaged waterfronts to meet the needs of their citizens. Port-abandoned waterfronts have become destination points providing a new influx of non-port related wealth (Sieber, 1991). Ports continue to provide economic benefits to cities, regions and states via direct and indirect employment; state, county and local tax revenues; and business development (Hayuth, 2007), but the once symbiotic port-city economic relationship no longer exists in many port cities throughout the world (Pinho, Malafaya Mendes, 2002).

2.4.1.4 Political Aspects of the Contemporary Port-City Relationship. Ports throughout the world fall under varying types of ownership and control. In Rotterdam, port governance falls under the auspices of the local government

while in Hamburg the port is managed by a city-state whose powers and responsibilities are greater than that of a municipality. In the case of Hamburg, the port's economic development needs are priority above the city's economic needs. Development of waterfront properties is permitted only after it has been established that such properties are not necessary for port operations (Amato, 1999). Conversely, central government control over port development plans in France has changed in Marseilles where the municipal urban planning agency and the port authority act as partners (Amato, 1999). Whereas a centralized system of governance over Korean ports once existed with the Ministry of Maritime Affairs and Fisheries planning and controlling maritime infrastructure and the Korean Container Terminal Authority managing port buildings and terminals, the ports are now controlled by the Busan Port Authority (Fremont Ducruet, 2005).

Over the past twenty years, container terminals that were once controlled by both public and private entities have been moving more towards private sector ownership. Global terminal operators may own terminals in more than one region, shifting the focus from the local to the global (Hayuth, 2007). In many industrialized nations, control of the operations and development of ports and control over city operations and development fall under the auspices of different organizations with differing agendas and priorities.

2.4.1.5 Societal Aspects of the Contemporary Port-City Relationship. Jobs, businesses, environmental concerns and national security are some societal characteristics of the contemporary port-city relationship. Competition between

ports has led to the adoption of more automated cargo handling mechanisms. Such efficiency provides fewer opportunities for port employment, diminishing another tie between the port and its city (Norcliffe, Bassett Hoare, 1996). Automation has also lessened the time seaman spend onshore, thus, businesses that once catered to sailors are no longer needed (Hilling, 1988).

Environmental concerns have not only focused on abandoned waterfronts but also on the operation of port facilities. Environmental regulations in California have led to the creation of the Green Terminal in Long Beach that prevents vessels from idling while loading and off loading containers (Hayuth, 2007).

While safety issues are still important societal concerns, concern for national security has also focused on ports as vulnerable entities for terrorist attacks. In a study of port cities in Canada and the United States, research revealed that changes regarding the security of redeveloped waterfronts near ports since September 11, 2001 have affected the port-city relationship. Responsibility for port and waterway security now falls under the purview of several organizations including the US Coast Guard, the US Department of Homeland Security and the port authorities. Conflicting viewpoints regarding waterfronts have emerged when the aforementioned agencies view waterfronts through the lens of national security, and many cities view the waterfront as providing public access to the water (Cowen Bunce, 2006).

2.4.2 Zones of Conflict

As competition among ports contending for customers within the global economy is intense, port expansions, landside improvements and more efficient connections to the hinterland are critical for port viability. Port authorities view waterfront property in close proximity to the port as land for potential expansion or for use by port-related industry. On the other hand, many city governments view available waterfront properties as valuable assets for non-industrial revenue generation and city reimaging. Port facilities contained in densely populated urban areas face land constraints and compete for land, often giving rise to conflict. As cities convert industrial land to other uses, clashes between the port and its new neighbors often result. New residential neighbors have lodged complaints against port operations over pollution, noise, truck traffic and visual obstructions (Pinho, Malafaya Mendes, 2002).

Examples of port-city conflict are provided below. Again, while these examples are provided under the discrete headings of societal, economic, and spatial, these aspects of the port-city relationship are clearly interrelated. For example, converting industrial waterfront properties adjacent to a port for residential use can be discussed as a spatial conflict because the port would lose the ability to expand operations to this newly redeveloped property. However, in this spatial example, an economic argument can also be made that redeveloping such waterfront property for non-industrial use constitutes a loss in potential jobs and economic benefits.

2.4.2.1 Spatial (Land Use) Conflicts. Many ports are feeling the pressures of gentrification and fearing the effects of converting waterfront property to non-commercial maritime and non-industrial uses. While city governments may favor the conversion of industrial zones and the redevelopment of waterfront property for residential, retail, recreation and entertainment activities, the port authorities, port facility owners, and longshoremen are concerned that once such property is no longer used for commercial maritime and industrial activities, it will be impossible to return it to such activity in the future (Mongelluzzo, 2007), and that conflicts between incompatible land uses will ensue. Some ports have been successful in holding such conversions at bay, for now, while other ports are losing the battle and fearing economic consequences.

In 2004, at the Port of San Diego, local politicians and businessmen promoted a proposal to construct a football stadium at the Port's busiest commercial maritime facility, Tenth Avenue Marine Terminal, claiming that such use was the best and highest for the site. A Working Group consisting of the Port of San Diego, the AFL-CIO, and the San Diego Port Tenant's Association defeated this conversion of industrial properties. The group was able to ensure a 1,000 foot buffer around the cargo terminals and industrial areas in an effort to prevent encroachment of incompatible land uses. The group is also working diligently to educate the public and elected officials on the economic validity of the port (American Association of Port Authorities, 2011; Popham, 2007). This, however, has not stopped construction of luxury apartments and office and retail establishments on waterfront properties neighboring the port (McClain, 2005).

Another example of spatial concerns and potential for land use conflict exists at the Port of Tacoma in Washington, which is in a race against a tide of gentrification. In 2002, the Tacoma City Council rezoned a waterfront area, allowing residential development within 200 feet of the shoreline. The Port and related industries lost a two-year court battle to stop construction of a residential and office tower next to a petroleum distribution depot. Since 2002, the Port of Tacoma has been purchasing shoreline properties in an attempt to preserve as much as the waterfront as possible for port-related industry (Voelpel, 2006).

The Seattle Port Commission fought a developer's proposal to convert one of the city's major container terminal sites into luxury apartments, offices, parks and a marina. The nation's fifth-busiest container port already shares the waterfront area with a conference center, discovery center, marina, and retail (Buntin, 2004). The Port Commission fears that the city government will eventually ban all container ships, tugs, barges, cranes, trucks and trains, elements vital for a competitive port. Citing the need to keep Seattle a livable city for the working class, the Port Commission argues that jobs on a working waterfront cannot be created in any off-waterfront location while offices, residences and parks can be established in many other locations. The port contributes about 35,000 jobs, □2 billion in payroll, and □210 million in state and local taxes annually to the region. One terminal on Seattle's waterfront provides almost 4,000 jobs, □200 million in payroll, and □22 million in state and local taxes annually (Davis □ Creighton, 2006).

At the Port of Providence in Rhode Island, a battle is brewing in 2010 between the mayor and industries regarding a 62-acre waterfront site. The mayor has put forth a proposal to rezone the site allowing non-industrial uses. A $400 million medical/hotel/marina complex is envisioned. The mayor argues that such rezoning would create jobs and increase the city's tax base. Opposition has been raised by the existing port industry that argues that situating hotels and hospitals near facilities such as fuel terminals will lead to complaints due to incompatible uses and operations (Marcelo, 2010).

In a 2002 survey, 70 percent of 19 major Canadian Port Authorities responded that gentrification is causing the conversion of commercial waterfront properties to residential, recreational and public access routes. As one respondent indicated "there is a complete lack of understanding by the communities that their port services the interests of 6 million Canadians, not just them, and their actions/requests can have a severe detrimental effect on families/communities 2-3,000 km away" (Ircha, 2002, p. 8). In Vancouver, the Fraser River Port Authority is worried about the conversion of industrial properties to high-end residential uses. The ongoing conversion of former paper and pulp mills will ultimately restrict the port's use of industrial properties for port-related activities (Irhca, 2002).

2.4.2.2 Economic Conflicts. While the port and the city's economic vitality was once intertwined (Pinho, Malafaya & Mendes, 2002), they are now on almost parallel tracks: that of the port and that of the city government. The port community, consisting of port authorities and port and industrial businesses, is

concerned that the city government preference for service sector businesses over port-related businesses will have a negative effect on the economic viability of ports. This port community argues that ports are economic powerhouses for the regions they serve and the service and commercial sector economies pale in comparison. Popham (2007) reported that the San Diego Bay's commercial maritime and trade-related business sector added $7.6 billion in output, $3.4 billion in personal income and almost $3.8 billion in value-added gross regional product to the regional economy. However, the service-based sector (including hotels and restaurants) contributed only $2 billion in output, $1.1 billion in personal income and $1.3 billion in value added gross regional product. In demonstrating the need for port jobs, port associations boast that ports provide better paying jobs than the service sector does. This is evident in a San Diego employment study that found hotel industry jobs paid an average of $20,000 to $25,000 per year compared to waterfront-related commercial maritime and industrial jobs that paid an average of $50,000 to $60,000 per year (Popham, 2007).

Comparing the economic benefits of developing an underutilized site by building a regional retail center or a modern industrial park for high value manufacturing, a Los Angeles study found that while a city government profits more from a retail center (due to generation of sales taxes), a manufacturing facility would produce three to four times as many jobs and higher paying ones than the retail businesses, as well as more income tax for the state because of the higher wages generated (Freeman Ackbarali, 2000). The City of Los

Angeles, home to the largest port in the United States, has recognized the value of manufacturing over housing by prohibiting the conversion of 2,000 acres of industrial property, citing the need to maintain the 40,000 industrial jobs in downtown Los Angeles (Karp, Hudson Timiraos, 2008).

2.4.2.3 Societal Conflicts. Environmental quality is a major element of the port-city relationship. Beginning primarily during Hoyle's Retreat from the Waterfront stage (1960s), environmental concerns continue in contemporary times. The environmental degradation caused by port activities is a common societal complaint. The two largest ports in the United States Port of Los Angeles and Port of Long Beach emit more pollution into the air than Southern California's top 300 emitting plants and refineries. Other violators of air quality standards include ports in New York, Oakland, and Houston (Buntin, 2004). Ports and port-related businesses also emit foul smells, noisy twenty-four-hour per day operations, and truck traffic.

In Sydney Harbor where new waterfront development includes residential, commercial and recreational activities, residents have forced terminal operators to curtail night-time operations and reduce noise and pollution levels. As a result, port-related businesses are moving away from this area, further from the port (Ircha, 2002).

In the US's sixth busiest container port, the Port of Charleston, protests of environmentalists and community groups resulted in the state legislature's prohibition of port expansion five miles upriver because of the potential for increased traffic congestion. Since the 1990s, public opposition has prohibited

the Port to expand its shipping births, curtailing its ability to expand in response to global demands (Buntin, 2004).

2.4.3 Stakeholders in the Port-City Relationship

Many public and private stakeholders with varying interests and viewpoints are engaged in the port-city interface. For the purposes of this research, stakeholders are those people, organizations, or agencies that have an interest or investment in the port and its operation or the redevelopment of urban waterfronts or both. Many entities control or influence the operation of a port and the redevelopment of waterfronts. While a port authority may own port property and manage the port, other entities may exert control over or otherwise influence port operations. For example, governments promulgate rules of operation and security, and provide approval and funding for port and ancillary infrastructure improvements. While a waterfront property may be redeveloped by a private development company, other entities exert control or otherwise influence the redevelopment effort. For example, the local government may deem the site blighted or determine that an area is in need of redevelopment or may change the zoning to allow for the proposed redevelopment. In order to understand the port-city relationship and the potential for land use conflicts between the port and redeveloping waterfronts, one must first understand what stakeholders are involved and what their respective roles, points of view, and agendas are.

In the port-city interface, waterfronts are spaces shared by various stakeholders with differing opinions (Hoyle, 2000b). When those waterfronts are located within the confines of a working harbor, the number of stakeholders

increases, as do the differing viewpoints. There is a wide spectrum and range of stakeholders from international businesses to local community groups; and their specific interests and the scale of their interests are just as varied.

2.4.3.1 International and National Stakeholders. Stakeholders on the international level include multinational corporations and foreign investors who create policy, enter into political alliances, and control the market all with global implications. One example of an international stakeholder is the Dubai Ports World which is owned by the government of the United Arab Emirates. Dubai Ports World owns port facilities in countries outside of the United Arab Emirates.

Stakeholders on the national level include the US federal government and its agencies which promulgate laws and regulations and develop procedures that affect port and waterfront development. An example of a national stakeholder is the United States Coast Guard who, among other responsibilities, facilitates the efficient and effective movement of freight on navigable waters.

2.4.3.2 Port Authorities and Municipalities. In regard to port operations and waterfront redevelopment, two major local stakeholders tend to be port authorities and municipalities. Each has its own agenda and set of priorities. A port authority is a governmental entity charged with the management of port facilities and matters related to the efficient operations of that port. Port authorities are most interested in market competition, productivity, efficiency and business development (Amato, 1999). Since the port connects economic regions and is a link on the global supply chain, the port authority's focus is primarily global and the decisions the port authority makes concerning port development

reflect this global agenda (Pinho, Malafaya Mendes, 2002). Municipal governments are concerned primarily with the welfare of its citizens and maintaining a certain quality of life. Their focus and decisions reflect local agendas (Amato, 1999). As port authorities generally have a global focus and municipalities have a local focus, at times, these major stakeholders, have conflicting agendas.

In a study of port cities undergoing waterfront transformations, the port-city relationship in Barcelona, San Francisco, and Lisbon were analyzed, concentrating on the roles of the municipalities and the port authorities (Garcia, 2008). Garcia (2008) noted that successful transformation of waterfronts from port uses to non-port uses requires cooperation and negotiation by stakeholders who have differing goals: the port authorities focused on commercial maritime operations and the municipalities focused on quality of life issues for its citizens. Differing jurisdictions with differing regulations was one key issue found in San Francisco. A clear jurisdictional demarcation existed between property controlled by the San Francisco Port Authority (SFPA) and land controlled by the city. However, with the Port of San Francisco s gradual loss of activity to the Port of Oakland, cooperation between the city and the SFPA emerged with SFPA proposing alternative non-industrial uses for the port area (Garcia, 2008).

The City of Barcelona s government took an active role in waterfront redevelopment by altering public policy and using public funds for the design of several parks, squares and public spaces. With the approval and participation of

the Port Administration of Barcelona, the old port area, which once separated the public from the water, was transformed into large public areas (Garcia, 2008).

The relationship between the city government of Lisbon and the port authority has not been as productive. The relocation of a container terminal and the subsequent redevelopment of the waterfront for non-port uses have been mired in controversy for years. Years of no dialogue between the city government and the port authority, coupled with public concern for the environment, led to the cessation of redevelopment plans. Public debate increasingly influences the political decisions of port relocation, as citizens (and their representatives) realize changes affecting both the city and the port are neither strictly private (a concern of investors), nor public but are a collective responsibility (Garcia, 2008, p.75).

2.4.3.3 Community Groups and Professional Associations. Community groups have the ability to play pivotal roles in waterfront redevelopment. Depending upon the community group's mission and interests, they may either support or oppose waterfront redevelopment plans and port operations and expansion plans. Research regarding the role of community groups in Canadian port cities revealed that the influence of these groups is dependent upon their commitment, tenacity and ability to focus on specific issues. The issues of contention common to the community groups researched included: public access to the water, environmental conservation, improved sense of community and historic preservation (Hoyle, 2000a). Additionally, professional associations, such as the New York Shipping Association, are concerned with port operations

and ancillary infrastructure expansion plans, as well as the impact of non-industrial waterfront redevelopment on their constituents businesses.

2.4.3.4 Growth Coalitions. While many groups act individually, public-private partnerships have formed in an attempt to reverse economic decline (Ferreira Visser, 2007). Pro-growth associations or growth coalitions are largely concerned with increased real estate values and economic returns and work together to create situations that will intensify future land uses (Logan Moloch, 1987). In addition to for-profit entities, various levels of government play important roles in these coalitions as they provide funding and promulgate legislation to jump start waterfront redevelopment, or port and ancillary infrastructure expansion. For example, a port authority, the Federal Highway Administration, the state s department of transportation, the metropolitan planning organization, and a trucking association may act in unison to improve highway connections between the port and its hinterlands. While all of these stakeholders on their own can create changes, the most beneficial changes occur when the influences from the top and pressures from the bottom are coordinated (Riley Shurmer-Smith, 1988).

CHAPTER 3

METHOD

3.1 Study Site and Definitions

This research addresses three main topics: (1) the evolution of the Port of New York and New Jersey; (2) the relationships between Port Newark□Elizabeth-Port Authority Marine Terminal (and its owner, the Port Authority of New York and New Jersey) and five municipalities that border Newark Bay; and (3) land use conflicts or the potential for conflict between Port Newark□Elizabeth-Port Authority Marine Terminal (an operating port) and Newark Bay waterfront properties redeveloped for non-industrial uses. For the purposes of this research, it is important to clearly describe the following entities as these are the major foci of the research: the New York Harbor, the Port of New York, the Port of New York and New Jersey, Port Newark□Elizabeth-Port Authority Marine Terminal, Newark Bay, Newark Bay municipalities, and Newark Bay waterfront properties.

New York Harbor is a system of waterways and coastlines. Created by a glacier which carved out the Hudson River Valley, the New York Harbor consists of a series of rivers, streams, creeks, inlets, coves, tidal straits and bays. The major rivers within the harbor include the: Hudson, East and Raritan; the major bays include the: Upper New York, Lower New York, Jamaica, Raritan and Newark; and the major tidal straits include the Arthur Kill and the Kill Van Kull. Figure 3.1 illustrates the New York Harbor and the location of these major waterways.

Figure 3.1 Waterways of the New York Harbor. This map shows the waterways of the New York Harbor with the exception of the Raritan Bay and Raritan River which are located southwest of the pictured area.

Source: Base map- NASA Satellite image, http: earthobservatory.nasa.gov IOTD view.php?id 3678.

While the terms New York Harbor and Port of New York are often used synonymously, for the purposes of this study, a distinction is made between them. While the New York Harbor refers to the system of waterways, the *Port of New York* refers to a system of those waterways and facilities that handle the transport and transference of cargo and people. Historically, the referenced port was called the Port of New York as port activities were concentrated on the

southern tip of Manhattan in the 1800s and early 1900s. The term *Port of New York and New Jersey* became more prevalent after the Port Authority of New York changed its named in 1972 to the Port Authority of New York and New Jersey.

The Port of New York and New Jersey is the largest seaport on the east coast of the United States and the third largest port in the country (behind Port of Los Angeles, CA and Port of Long Beach, CA) (PANYNJ, 2010, April). The major commercial maritime terminals owned by the Port Authority of New York and New Jersey (hereinafter referred to as the Port Authority) are: (1) Port Newark, (2) Elizabeth-Port Authority Marine Terminal, (3) Port Jersey-Port Authority Marine Terminal, (4) Howland Hook Marine Terminal, (5) Red Hook Container Terminal, (6) Brooklyn-Port Authority Marine Terminal, and (7) South Brooklyn Marine Terminal (see Figure 3.2). The Port of New York and New Jersey is a gateway to the global market. Its host, the New York metropolitan area, is ranked the most populated (approximately 20 million people) and most affluent consumer market in the world (Rodrigue, 2005).

Figure 3.2 The Port of New York and New Jersey. This map identifies the major cargo terminal contained within the Port of New York and New Jersey in 2010.

Source: Guenter Vollath, Port Authority of New York and New Jersey.

Port Newark and Elizabeth-Port Authority Marine Terminal together is the major commercial maritime complex of the Port of New York and New Jersey and is physically located on Newark Bay. The Port Authority operates Port

Newark and Elizabeth-Port Authority Marine Terminal as one integrated marine terminal and is the reason why it is referred to as a single entity Port Newark Elizabeth-Port Authority Marine Terminal. This port complex encompasses 2,100 acres (New Jersey Department of Transportation [NJDOT], 2004) in the cities of Newark (930 acres) and Elizabeth (1,254 acres), New Jersey. While a port can be defined as a convergence between the land and maritime domains (Rodrigue, Comtois Slack, 2006), for the purposes of this research, Port Newark Elizabeth-Port Authority Marine Terminal is defined as a *facility* which receives and transports cargo.

Newark Bay, part of the New York Harbor is located in the northeastern portion of New Jersey and measures approximately six miles long and one mile wide (see Figure 3.3). Newark Bay lies at the confluence of the Passaic and Hackensack Rivers. The Arthur Kill and Kill Van Kull waterways meet Newark Bay on the south, and the Upper New York Bay lies beyond Jersey City and Bayonne to the east. Newark Bay is a working harbor that includes Port Newark Elizabeth-Port Authority Marine Terminal. In order to present a more thorough discussion of the waterfront land uses on Newark Bay, this study also includes some waterfront properties that lie on the Arthur Kill, Kill van Kull, Passaic River, and Hackensack River. Thus, when the term *Newark Bay* is used as the location of the study area, portions of these other waterways are included.

Figure 3.3 Newark Bay and Newark Bay municipalities. This map identifies the location of the five Newark Bay municipalities, Port Newark and Elizabeth-Port Authority Marine Terminal, and Newark Bay.

Source: Base map- New Jersey Department of Environmental Protection and New York City Department of City Planning GIS Files.

Newark Bay municipalities are those five municipalities that border Newark Bay in New Jersey: the cities of Newark and Elizabeth to the west, the cities of Jersey City and Bayonne to the east, and the Town of Kearny to the north. Staten Island, New York borders Newark Bay to the south but is not the subject of this research (see Figure 3.3).

The term "Newark Bay waterfront properties" is defined as lands contained within Newark, Elizabeth, Jersey City, Bayonne and Kearny which lie adjacent to Newark Bay. These waterfront properties contain industrial, commercial, residential and recreational land uses. In Newark and Elizabeth some waterfront properties contain Port Newark and Elizabeth-Port Authority Marine Terminal, respectively. The change in zoning and land use from industrial to non-industrial (including residential and recreation) and the redevelopment of these waterfront properties for non-industrial uses are the subject of this research.

The terms "maritime" and "commercial maritime" are used often in this dissertation. "Maritime" pertains to navigation and navigational facilities, infrastructure and businesses that handle or transport cargo and people. Thus on maps such as the one shown in Figure 5.5, maritime land uses may include cargo or passenger terminals. The term "commercial maritime" refers to facilities, infrastructure and businesses that handle and transport cargo only. The term "port-related" means related to the commercial activities of the port.

3.2 Research Questions

This study focuses on: the evolution of the Port of New York and New Jersey; the relationships between Port Newark-Elizabeth-Port Authority Marine Terminal

(and its owner, the Port Authority) and the municipalities that border Newark Bay; and the potential for land use conflicts between Port Newark Elizabeth-Port Authority Marine Terminal (an operating port) and Newark Bay waterfront properties redeveloped for non-industrial uses.

The questions posed for this research were:

1. How has the Port of New York and New Jersey evolved from the early 1800s - 2010? (This question was addressed in Chapters 4-8.) Does this evolution fit Hoyle s Port-city Evolution Model? (This question is addressed in Chapter 9.)

2. How have land uses on the Newark Bay waterfront changed from the early 1880 s - 2010? (This question is addressed in Chapters 10-11.)

3. What is the nature of the current (2010) relationships (spatial, functional, economic, political and societal) between Port Newark Elizabeth-Port Authority Marine Terminal (and its owner, the Port Authority) and the five Newark Bay municipalities? (This question is addressed in Chapter 12.)

4. What are recent and proposed plans for Newark Bay waterfront properties? (This question is addressed in Chapter 11.)

5. From 2000 - 2010, have industrial Newark Bay waterfront properties in the Cities of Newark, Elizabeth, Jersey City and Bayonne, and the Town of Kearny been rezoned and or redeveloped for non-industrial uses such as residential, retail, recreation, commercial and entertainment? (This question is addressed in Chapter 11.)

6. From 2000 - 2010, have land use conflicts risen between Newark Bay waterfront properties redeveloped for non-industrial use and Port Newark Elizabeth-Port Authority Marine Terminal operations? What, if anything, is being done to resolve these conflicts? (This question is addressed in Chapter 13.)

7. If no or minimal land use conflicts exist today, is there cause for concern that such land use conflicts might arise in the future based on present day or proposed redevelopment activities? (This question is addressed in Chapter 13.)

8. What stakeholders are involved in waterfront redevelopment and port activities? (This question is addressed in Chapter 13.)

3.3 Sources of Data

The sources of data used in this research are described in this section and are also listed in Table 3 by research question.

Table 3.1 Research Questions and Sources of Data

Research Questions	Sources of Data			
	Secondary Sources (books)	**Archives (maps, photos, news and journal articles, government reports, development plans)**	**Interviews (elected officials, government staff, advocacy groups, business owners)**	**Site Observations and Photographs**
How has the Port of New York and New Jersey evolved from the early 1800s - 2010? Does this evolution fit Hoyle's Port City Evolution Model?	X	X		
How have the land uses on the Newark Bay waterfront changed from the early 1880's - 2010?	X	X		
What is the nature of the current relationship (spatial, functional, economic, political and societal) between Port Newark-Elizabeth-Port Authority Marine Terminal (and its owner, the Port Authority) and the five Newark Bay municipalities?		X	X	X
What are recent and proposed plans for Newark Bay waterfront properties?		X	X	
From 2000 - 2010, have industrial Newark Bay waterfront properties in the Cities of Newark, Elizabeth, Jersey City and Bayonne, and the Town of Kearny been rezoned and/or redeveloped for non-industrial uses such as residential, retail, recreation, commercial and entertainment?		X	X	X
From 2000 - 2010, have land use conflicts risen between Newark Bay waterfront properties redeveloped for non-industrial use and Port Newark-Elizabeth-Port Authority Marine Terminal operations? What, if anything, is being done to resolve these conflicts?		X	X	X
If no or minimal land use conflicts exist today, is there cause for concern that such land use conflicts might arise in the future based on present day or proposed redevelopment activities?		X	X	X
What stakeholders are involved in waterfront redevelopment and port activities?		X	X	

In this research, primary and secondary sources were used. Publications, including books, newspaper and journal articles, and government agency reports obtained from libraries, the world wide web, organizations such as the Port Authority and the North Jersey Transportation Planning Authority, and the municipalities of Newark, Elizabeth, Jersey City, Bayonne, and Kearny.

Archives were searched for relevant maps, photographs, news articles and reports. These archives included:

- Newark Public Library
- Elizabeth Public Library
- Jersey City Public Library
- Bayonne Public Library
- Kearny Public Library
- New York Public Library
- New Jersey Institute of Technology Library
- Rutgers, the State University of New Jersey Library
- Port Authority of New York and New Jersey
- Municipal planning offices
- New York Historical Society
- Library of Congress
- National Archives and Records Administration

Site observations were made and original photographs were taken.

Geographic information system (GIS) files obtained for the cities of Newark, Elizabeth, Jersey City, and Bayonne and the Town of Kearny were studied. New Jersey Department of Environmental Protection and New York City Department of City Planning 2010 GIS files were used for base mapping.

Semi-structured interviews were conducted (and audio recorded) with the following professionals. (Interview questions are contained in Appendix A.)

Municipal Representatives

- The Honorable Christian Bollwage, Mayor of the City of Elizabeth, New Jersey, July 6, 2011. Mayor Bollwage has served as the city's mayor since 1992.

- The Honorable Augusto Amador, Councilman of the City of Newark's East Ward, July 8, 2011. Councilman Amador has served as councilman since 1998.

- The Honorable Alberto G. Santos, Mayor of the Town of Kearny, New Jersey, June 3, 2011. Mayor Santos has served as the town's mayor since 2000.

- The Honorable Jeremiah T. Healy, Mayor of Jersey City, New Jersey, August 16, 2011. Mayor Healy has served as mayor since 2004.

- Robert Cotter, PP, AICP, Director of the Division of City Planning for the City of Jersey City, October 29, 2010.

- John Fussa, P.P., City Planner for the City of Bayonne, September 3, 2010.

County Representative

- Stephen D. Marks, PP, AICP, CFM, Director of Planning for Hudson County, New Jersey, September 10, 2010. Hudson County encompasses the cities of Jersey City and Bayonne and the Town of Kearny.

Other Governmental Agency Representatives

- The Honorable Peter S. Palmer, Freeholder and Chairman of the Freight Initiatives Committee of the North Jersey Transportation Planning Authority, June 14, 2011. The North Jersey Transportation Planning Authority is the Metropolitan Planning Organization for northern New Jersey. The Freight Initiatives Committee has eight elected officials as members. Its mission is to: support the regional goods movement industry; establish a goods movement agenda for truck, rail, air and waterborne commerce in the region; and maintain the region s prominent position in the global marketplace by recommending strategic transportation investments and policies.

- Caren S. Franzini, Chief Executive Officer of the New Jersey Economic Development Authority, June 15, 2011. The New Jersey Economic Development Authority is an independent, self-supporting state agency that finances small and mid-sized businesses, administers tax incentives to retain and grow jobs, and revitalizes communities through redevelopment initiatives.

Advocacy Groups

- Joseph C. Curto, President of the New York Shipping Association, Inc., September 24, 2010. The New York Shipping Association represents the interests of its members in maximizing the efficiency, cost-competitiveness, safety and quality of marine cargo operations in the Port of New York and New Jersey. Its members include stevedores, shipping lines, and other commercial maritime industries.

- Michael G. McGuinness, Chief Executive Office of the New Jersey chapter of the National Association of Industrial and Office Properties (NAIOP), November 5, 2010. NAIOP is an industrial, office and mixed-use commercial real estate trade association for developers, owners, and investors.

- David Stein, Executive Director of Nation sPort, July 26, 2010. Nation sPort is an association of commerce related businesses with the mission of promoting the sustainable international movement of goods through a world-class logistics system.

- Roland Lewis, President and CEO of the Metropolitan Waterfront Alliance, December 10, 2010. The Metropolitan Waterfront Alliance is an advocacy group consisting of 500 member organizations with interest in the region s waterways. The mission of the organization includes transforming the New York and New Jersey Harbor into a clean and more accessible place to play, learn and work.

- Debbie Mans, Baykeeper and Executive Director of NY NJ Baykeeper, January 11, 2011. The NY NJ Baykeeper is the citizen guardian of the Hudson-Raritan Estuary that works to protect, preserve, and restore the environment of the estuary.

Private Industry

- Jim Devine, President and CEO of Global Container Terminals USA and President and CEO of New York Container Terminal, July 14, 2011. New York Container Terminal is located on a 187 acre, three-berth container terminal facility in Staten Island at Howland Hook. Mr. Devine is a 35-year veteran of the shipping industry.

- Gerard N. von Dohlen, PhD., President of the Newark Refrigerated Warehouse and Port Newark Refrigerated Warehouse, June 20, 2011. Port Newark Refrigerated Warehouse is located on the footprint of Port Newark, and the Newark Refrigerated Warehouse is located less than two miles from Port Newark. The businesses handle imports and exports going through Port Newark Elizabeth-Port Authority Marine Terminal.

Interviews of the municipal elected officials and staff and the county representative primarily informed the dissertation sections regarding waterfront planning issues and redevelopments, port-city relationships and the potential for land uses conflict. Interviews with other governmental agencies, advocacy groups and private industry primarily informed the dissertation sections regarding current port operations and challenges, current waterfront redevelopment issues, port-city relationships, and the potential for land uses conflict. All of these interviews were valuable because they provided various perspectives (municipal, port, public sector, private sector) that helped create a well-rounded discussion of the issues (planning, redevelopment, conflict, challenges).

Requests to interview staff from the Port Authority of New York and New Jersey and the county planners from Union and Essex County went unanswered.

3.4 Organization of the Dissertation

This dissertation is divided into four parts.

The introduction, conceptual framework and method are presented in Part I (Chapters 1 - 3).

The evolution of the Port of New York and New Jersey, an assessment of the Port-city Evolution Model, and a new Port of New York and New Jersey Evolution Model are presented in Part II (Chapters 4 □ 9).

The history of the Newark Bay municipalities□waterfront land uses are presented in Part III (Chapters 10 □ 11).

An analysis of the current relationships between Port Newark□Elizabeth-Port Authority Marine Terminal (and its owner, the Port Authority) and each of the five Newark Bay municipalities is the subject of Part IV (Chapters 12-14).

PART II: EVOLUTION OF THE PORT OF NEW YORK AND NEW JERSEY

CHAPTER 4

EARLY HISTORY

As the Port of New York began on the southern tip of Manhattan, the history of the port presented in this dissertation focuses on maritime activities involving the lower East and Hudson rivers and Upper New York Bay, and the adjacent waterfronts.

New York Harbor's history of trading has been documented as far back as the 1500s when the Iroquois Indians traded beaver skins with the Dutch who in return provided blankets and axes to the Iroquois. Shortly after Henry Hudson discovered the waterway that now bears his name, the Dutch settled New Amsterdam in 1626 and established a trading community at the southern tip of Manhattan Island. The English took control of New Amsterdam in 1664, changed the name to New York, and continued to encourage commercial maritime activities (The Port of New York, [PONYA], 1974). In the early 1660s commerce was mainly beaver skin, but by the late 1600s flour and wheat were the primary exports, with rum, molasses, and wine the major imports (Albion, 1984; PONYA, 1974).

Facilities that supported commercial port operations began with small platforms, wharves and seawalls. The first major port facility was the Great Dock, funded with public money and constructed in the late 1600s. It extended from Broad Street into the East River (Bone, 2004). As commerce increased so

did waterfront development, encouraged by two legal charters. The first in 1686 granted the local government title to all public lands down to the low water mark; the second extended those rights 400 feet further into the East and Hudson Rivers. As the New York City government required more funds, it sold waterfront properties, encouraging private ownership of the waterfront; however, the main docks remained government owned (PONYA, 1974). In 1678, three ships, eight sloops, and seven boats anchored in Manhattan. By 1694, those numbers increased to 60 ships, 62 sloops, and 40 boats (Albion, 1984, p.3). By the end of the 1600s, the major port activities occurred on the shores of the East River, because of favorable winds and lack of ice floats, while the Hudson River shoreline remained mostly undeveloped (Griffin, 1959; Pollara, 2004b). The major exports were lumber and grain, while the major imports were cotton, raw sugar and fine chain (Buttenwieser, 1987).

By the turn of the century, the port was booming. Docks and piers, merchants, and ship building yards lined the lower Manhattan East River waterfront. Local government actions supported the growth of the port. A Common Council Committee charged with organizing port activity authorized the construction not only of slips and wharves, but of streets which led to these facilities (Wise, Woods Bone, 2004). Ordinances were passed allowing piers to be constructed 200 feet from the seawall into the East River. Additions to the Great Dock were made periodically to allow for larger ships and increased capacity of goods (Bone, 2004).

By 1770, the New York port was ranked the fourth largest in the colonies behind Philadelphia, Boston and Charleston. The growth of the port came to a halt, however, when the colonists and British engaged in war. When the British occupied the New York port from 1776 to 1783, trade with the other colonies was cut off; construction and harbor maintenance activities were stopped (Albion, 1984). By the time the British vacated, commerce was at a standstill and infrastructure was in disrepair but the demand for goods was high (Bone, 2004). The port quickly recovered with the construction of new piers and wharves. Waterfronts were extended by fill to allow for the mooring of larger ships bound for China. In 1784, the ship Empress of China left New York for China, the first Asiatic voyage of an American ship (PONYA, 1974).

CHAPTER 5

HISTORICAL OVERVIEW OF THE PORT OF NEW YORK: 1800s - 1940s

The 1800s were marked by significant port expansion, both in terms of the physical setting and its sphere of influence. That expansion continued into the 1900s, transforming what originally began as a port town to a "maritime metropolis" (Bone, 2004, p. 87). However, toward the end of this time period, the Port was facing difficulties arising from congestion, infrastructure neglect, and changes in transportation technologies.

Figure 5.1 is a timeline of the significant events, activities and conditions affecting the port and the waterfronts from the 1800s to 1940 that are discussed in this chapter. In this figure, the significant events, activities and conditions affecting the port and the waterfronts are grouped under five categories: waterfront activities, innovation, challenges, planning and authority and control.

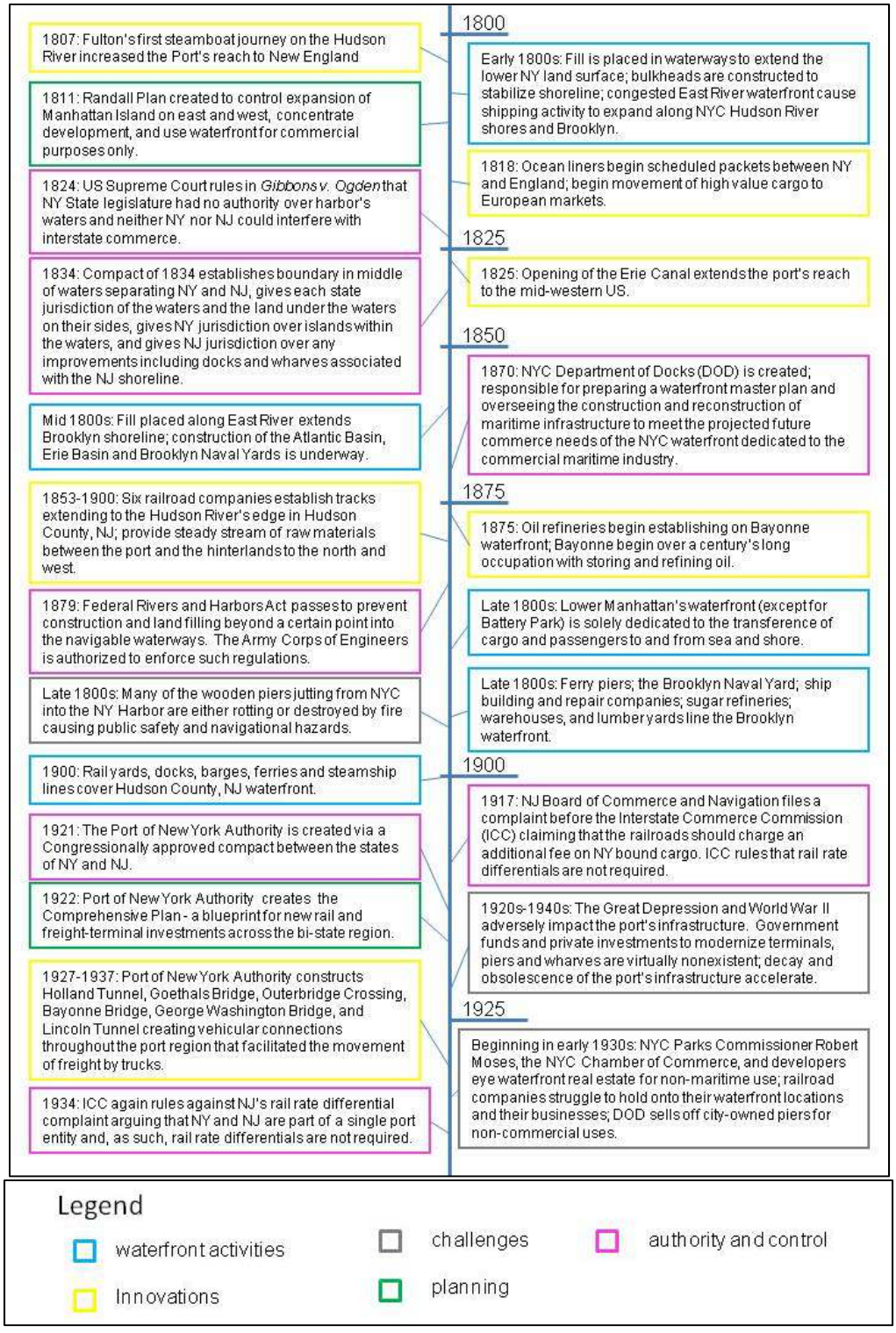


Figure 5.1 Timeline of significant events, activities and conditions affecting the port and waterfronts from the 1800s to 1940.

5.1 Commercial Maritime and Associated Industrial Activities in the Port of New York

5.1.1 Technological Advancements Accelerate Port Growth

The invention of the steamboat and the ocean liner, the opening of the Erie Canal, and the establishment of railroad service all significantly influenced the growth of the Port of New York in the 1880s (Albion, 1984; Kellner, 2006; Griffin, 1959). These innovations extended the Port's reach from the Hudson Valley and parts of Long Island, New Jersey and Connecticut (Albion, 1984) to states beyond the tri-state area and countries beyond the United States. The significance of these innovations was also the creation of a regularity and predictability in the movement of goods and people.

Robert Fulton's first steamboat journey on the Hudson River in 1807 increased the Port's geographic reach to New England with initial service to New Haven, Connecticut, followed by service to Providence, Rhode Island. Unlike sail boats which were vulnerable to wind current, the steamboat ensured predictable and regular service (Albion, 1984; Griffin, 1959).

Eleven years after Fulton's inaugural voyage, ocean liners began scheduled packets between New York and England. These vessels, operated under private management, ensured regular transport of transatlantic voyagers and cargo. The 1818 Black Ball Packet service between New York and Liverpool began the movement of high value cargo to European markets which contributed to the Port of New York's growth and prominence as a major world port (Albion, 1984; Kellner, 2006).

The 1825 opening of the Erie Canal extended the Port of New York's reach to the mid-western United States. Cutting through the Appalachian Mountains, the Erie Canal allowed for the transport of wheat and grain from farmlands to Manhattan and beyond and transport of raw materials and foreign goods back to Midwesterners (Griffin, 1959; Bone, 2004; Kellner, 2006).

In the mid-1800s, the establishment of railroad tracks, yards and docks on the Hudson River shoreline in New Jersey provided a steady stream of raw materials and other cargo traveling between the Port of New York and the hinterlands to the north and west (Albion, 1984). The critical role railroads played in the development of the Port of New York was the long distance transference of cargo between points north and west of New York and the commercial maritime facilities on the Manhattan and Brooklyn shorelines (Kellner, 2006; Bird, 1949).

While technological innovations, which afforded regular transport of travelers and cargo to new reaches in the United States and abroad, had a tremendous effect on the growth of the port, it is important to mention that technological advancements in construction techniques and materials also contributed to the physical growth of maritime and other industrial structures within the port itself. During the Industrial Revolution, the tip of Manhattan was transformed from a port town to a "maritime metropolis" with the Port of New York serving as a "laboratory for emerging methods and materials" of "civil engineering commitments on a mammoth scale" (Bone, 2004, p. 87).

5.1.2 Increase and Diversity of Commerce

A number of events had negative effects on trade through the Port of New York during the 1800s: the Embargo Act of 1807 which forbade American ships to handle foreign commodities, the War of 1812's British blockade of the port, privateer attacks on merchant ships, and the Civil War (Albion, 1984). Yet despite these halts and stalls in commerce, the amount of commerce handled by the Port of New York continued to grow. At the end of the 1700s, the Port of New York handled less than six percent of the total US foreign trade value (Raciti, 1968). By the mid-1800s, the Port of New York handled one-third of US exports and two-thirds of US imports (Griffin, 1959). By the early 1900s, the Port of New York was a major international gateway. Almost 50 percent of all US imports and exports flowed through the Port of New York to and from the Midwestern, northern and southern United States, European nations, and Asia (Albion, 1984; Kellner, 2006; Doig, 2001).

Three major trade routes established in the early 1800s from the Port of New York were primarily responsible for the three prevailing commodities travelling through the port: flour, textiles and cotton. From the mid-west, the opening of the Erie Canal assured a steady supply of flour. Textiles traveled the route between New York and Europe. But for most of the 1800s, cotton was the chief commodity. The Port of New York was a major player in the Cotton Triangle: cotton from southern US cities including Savannah, Charleston and New Orleans was traded with European nations but, due to the strategic thinking, that freight had to travel through the Port of New York providing added wealth to

New York businessmen (Albion, 1984; Kellner, 2006). Additionally, raw materials such as coffee, sugar, oil, lumber, rubber, flour, and iron travelled through the port to local factories.

According to a Port of New York Authority publication (1951b), by the early 1940s, the major commercial maritime and industrial activities in the Port of New York were roughly divided as follows:

- Manhattan: passenger terminals, inland terminals, and general cargo (see Figure 5.2)
- Brooklyn: commercial terminals, ship repairs, copper fabricators
- Staten Island: oil storage and refineries, ship building
- Bayonne: oil storage and refineries
- Jersey City: commercial terminals and general cargo
- Hoboken: ship building
- Weehawken: sugar refinery
- Kearny: ship building
- Elizabeth: machine and commercial terminals
- Newark: lumber and general cargo

Figure 5.2 *Aerial view of the tip of Manhattan looking like a miniature city, ca. 1942*. Photograph. This photograph shows the many piers and wharves that handled cargo and passenger vessels along lower Manhattan extending into the East River (lower portion of the photo) and Hudson River (upper, left portion of the photo).

Source: 30-N-42-1864. The Still Picture Branch of the National Archives and Records Administration, College Park, Maryland.

5.1.3 A Bustling Economy

The New York region's economy was highly dependent upon the activities in the Port of New York. The jobs of dock workers, tug and barge operators, ship builders, blacksmiths, rope makers, riggers, and carpenters were directly connected to maritime activity. Work associated with the importing and exporting of goods were also in abundance and included those of customs officials, factory workers, railroad operators, oyster merchants, and brewers (Bone, 2004; Doig,

2001). Around 1920, the southern tip of Manhattan contained over 20,000 manufacturing entities that employed approximately 500,000 people (Shell, nd). Large manufacturers including Colgate and Company, F. Mueller Company, Maxwell House Coffee, and Thomas J Lipton Company all had factories near the Hudson River in New Jersey. Ship building was a major industry with shipyards in Brooklyn, Elizabeth, Staten Island, Kearny, Hoboken and Bayonne.

5.1.4 Difficulties Facing the Port of New York

For a little more than a century (1800s to early 1900s), the Port of New York grew despite a few complications- embargos and blockades, physical constraints of the waters, and unorganized development to name a few. As port activities continued into the twentieth century, other complications emerged. During a winter in World War I, congestion in the harbor and insufficient infrastructure to handle all the oceangoing vessels (including those involved in the war effort) caused a backup of hundreds of train cars stretching from New Jersey to Pennsylvania (Doig, 2001; Shell, nd).

While railroads were the dominant surface mode of cargo transport beginning in the mid to late 1800s, their popularity began to wane in the early 1900s with trucks becoming the preferred mode. The opening of the Holland Tunnel (1927), the Goethals Bridge (1928), the Outerbridge Crossing (1928), the Bayonne Bridge (1931), the George Washington Bridge (1931), and the Lincoln Tunnel (1937) created vehicular connections throughout the port region that facilitated the movement of freight by trucks. The growing use of trucks created more congestion along the New York waterfronts and the associated streets that

were originally designed for horse drawn carriages (Levinson, 2006; Raciti, 1968).

The Great Depression and World War II adversely impacted the port's infrastructure. Government funds and private investments to modernize terminals, piers and wharves were virtually nonexistent in the decades of the 1920s through the 1940s. While port activity, especially related to the war effort was strong during World War II, this activity and the lack of the aforementioned funds and investments for maintenance repair and modernization accelerated the decay and obsolescence of the port's infrastructure (Doig, 2001; Raciti, 1968).

Other difficulties that the Port of New York faced in the 1800s and early 1900s included jurisdictional conflicts of the harbor waters, modernization of maritime infrastructure, railroad rate differentials, and economic inequities within the port region. The following section provides more detail about each of these issues.

5.2 Authority and Control

A recurring theme through the 1800s to the early 1900s was authority and control over jurisdiction and growth. Battles between the New York state and city and New Jersey state governments regarding harbor jurisdiction, jurisdiction over physical elements in the water, and control of waterfront development and infrastructure were issues resulting from the ever expanding port activities in the Port of New York.

5.2.1 Battle for Control of the New York Harbor

By the beginning of the 1800s, most ships traveling into and out of the Port of New York moored on the New York shoreline. New Jersey proprietors wanted a share of that business and constructed wharves along the Jersey City waterfront. While the waters of New York harbor touch both states, the New York City Common Council did not view New Jersey as part of the port and considered all land under the harbor's water as part of New York City. As such, the New York City government claimed that wharves constructed from the New Jersey waterfront were illegal. Additionally, the New York City Common Council treated boats arriving from New Jersey as it would any other foreign port vessel, requiring them to be cleared at the New York Custom House. The New Jersey legislature countered that New Jersey's jurisdiction extended to the middle of the harbor waters, and the New Jersey State Legislature issued an edict allowing fees to be levied on all New York boats docking on the New Jersey shoreline (Raciti, 1968).

The tensions between the two states continued with both the New York and New Jersey State legislatures attempting to restrict the others port commerce activities. Finally, in 1824, the US Supreme Court ruled in *Gibbons v. Ogden* that the New York State legislature had no authority over the harbor's waters and that neither state could interfere with interstate commerce (Doig, 2001). Recognizing that the Supreme Court decision did not calm the escalating tensions, in 1833 the governors of New York and New Jersey agreed to work together to find common ground. The Compact of 1834 established a boundary

in the middle of the waters separating New York and New Jersey, gave each state jurisdiction of the waters and the land under the waters on their respective sides of the boundary, gave New York jurisdiction over islands within the waters, and gave New Jersey jurisdiction over any improvements including docks and wharves associated with the New Jersey shoreline (Bird, 1949; Doig, 2001; Raciti, 1968; Interpretation of New York-New Jersey Agreements of 1834 and 1921). For the remainder of the 1800s, this compact stood.

5.2.2 Jurisdiction over Physical Elements in the Water

With the increase in cargo demand and the increased size of ships, private entities were constructing larger piers that extended further into the rivers. This unregulated construction was allowed by the New York City government. Originally, the British colonial authorities had claimed ownership of the unencumbered land under the river. That ownership was then transferred to the City of New York which in turn leased or sold the rights to private entities who constructed the piers for business purposes (Betts, 2004). While longer piers enhanced the transference of cargo, they also posed an impediment to sailing vessels. In 1879 the federal Rivers and Harbors Act was passed which prohibited construction and land filling beyond a certain point into the navigable waterways. The Army Corps of Engineers was authorized to enforce such regulations (Buttenwieser, 1987; Kellner, 2006).

5.2.3 Control of the New York Waterfront

During the 1800s development along the New York City waterfront was haphazard and to a certain extent unregulated. While the 1789 Outer Streets and Wharves Act imposed certain rules on private owners regarding construction of the wharves, and the local government engaged in street construction, for the most part private businessmen developed the majority of the waterfront for their individual purposes (Betts, 2004; Buttenwieser, 1987). Fill was being placed in the waterways to extend the land surface beyond its natural limits; bulkheads were being constructed to stabilize portions of the shoreline; sewage was being dumped into the waterways; and shipping activity was drifting from the East River shores to the Hudson River shores as the East River was becoming too congested (Wise, Woods Bone, 2004; Betts, 2004).

Organization and control over waterfront development was first identified in the New York State ordered Randall Plan (also known as Commissioner s Plan) published in 1811. It set out to control expansion of Manhattan Island on the east and west, concentrate development, and use the waterfront for commercial purposes only (Buttenwieser, 1987; Wise, Woods Bone, 2004). Public recreational uses on lower Manhattan were restricted in the Randall Plan as they were viewed as inconsistent with the mission of the thriving commercial port (Wise, Woods Bone, 2004). The municipal authority over the wharves, piers and slips came under the control of the Commission of Streets and the Common Council. Dock Wardens, under the auspices of the City s

Superintendent of Wharves were responsible for supervising wharves and collecting fees from private land owners (Albion, 1984).

By the late 1800s, many of the wooden piers jutting from New York City into the New York Harbor were either rotting or had been destroyed by fire causing public safety and navigational hazards (Betts, 2004). Recognizing the need to improve waterfront infrastructure not only for safety reasons but to promote and expand maritime and commercial activities, the New York City Department of Docks (DOD) was created in 1870. The DOD was responsible for creating a waterfront master plan and overseeing the construction and reconstruction of maritime infrastructure to meet the projected future commerce needs of the New York City waterfront dedicated to the commercial maritime industry. Concurrent with the establishment of the DOD, the State of New York deeded all the underwater, ungranted lands around Manhattan to the city government. Under the guidance of the DOD, the following major waterfront infrastructure was constructed, using state-of-the-art construction methods and techniques:

- Pier 1 and Pier A at Battery Park were constructed of granite and concrete;
- a system of river walls built of precast concrete blocks along the Hudson and East Rivers;
- the Naval Basin, a permanent stone breakwater that protected mooring vessels; and,
- Chelsea Piers located on the Hudson River side of Manhattan.

Collectively, these alterations to the New York waterfront stabilized the shoreline, allowed for deeper waters for mooring vessels, and presented a more modern

and attractive appearance for a port that had begun to languish in disrepair (Betts, 2004; Buttenwieser, 1987; Kellner, 2006; Wise, Woods Bone, 2004). By the early 1900s, New York City waterfront development had some semblance of organization.

5.2.4 Battle Over Railroad Rate Differentials

In 1916, a battle between New Jersey and New York brewed regarding rates charged by railroad companies hauling cargo into and out of the Port of New York. Most of the railroad lines that carried cargo to and from the Port of New Yorks waterborne vessels ended at the Hudson River waterfront in New Jersey. This cargo was then lightered (placed on a barge that was pulled by tugboats) across the Hudson River to awaiting ships on the New York City side. The railroad companies treated this port area as a single rate zone, charging the same rate for transporting cargo bound for boats docked along the New Jersey shoreline as it did for cargo bound for vessels docked along the New York shoreline even though the latter involved an extra transportation step. New Jersey decried this as preferential treatment to New York. According to New Jersey businessmen and local governments, charging the same rate for cargo destined to New York gave New York an advantage. New Jersey wanted a rate differential lower rates for hauling cargo destined for the New Jersey side of the river.

In 1917 the New Jersey Board of Commerce and Navigation filed a complaint before the Interstate Commerce Commission (ICC) claiming discrimination against New Jersey. The ICC ruled against New Jerseys

complaint arguing that New York and New Jersey were part of a single port entity and, as such, rail rate differentials were not required (Bird, 1949; Doig, 2001; Raciti, 1968). Twelve years later, New Jersey complained again to the ICC, wanting the railroads to charge a fee for lightering cargo across the Hudson River from New Jersey to New York. In 1934, the ICC once again deemed the activities on both sides of the Hudson River to be part of a single port, negating New Jersey's claim that additional fees should be levied for New York bound cargo (Doig, 2001). These rulings were foundational elements of the view that the commercial maritime activities on the Hudson County waterfront in New Jersey, on the New York City waterfront, and in the waters of the lower Hudson and East Rivers, and the Upper New York Bay were all part of the same port.

5.2.5 Creation of the Port of New York Authority

The argument regarding rail rate differentials raised a larger concern voiced by businessmen and some elected officials. They feared that the bickering and legal fights between the two states might jeopardize the port's economic prosperity and future growth. Recognizing these concerns, in 1917, the two state governors created a joint commission - the New York and New Jersey Port and Harbor Development Commission - to explore ways of enhancing the port's economic viability. Viewing the port area as a single region, the commission recommended the creation of a bi-state agency with responsibility for cooperative planning. So the Port of New York Authority was created in 1921 via a Congressionally approved compact between the states of New York and New Jersey. Its geographic region of responsibility is a 25 mile radius extending from

the Statue of Liberty, and encompassing 1,500 square miles of land and water (Doig, 2001).

The Compact dictates the powers and responsibilities of the bi-state agency that include the ability to "purchase, construct, lease and/or operate any terminal or transportation facility within the port district" (Bird, 1969, p. 9). Terminal facilities include "every kind of terminal or storage facility now in use or hereafter designed for use for the handling, storage, loading or unloading of freight" (Bird, 1969, p.10) and transportation facilities include a variety of rail, truck, tunnels, bridges, watercraft "now in use or hereafter designed for use for the transportation or carriage of persons or property" (Bird, 1969, p.10). Additionally, the Compact authorizes the agency to acquire property and borrow money (Bird, 1969). Its financial needs are met through its ability to issue bonds and levy charges for the use of its facilities (Doig, 2001). (When the Port of New York Authority was created, it did not own any facilities. Today, it owns bridges, tunnels, bus terminals, airports and port facilities which generate revenue.)

The Port of New York Authority's first responsibility was to create a Comprehensive Plan for the port district. Adopted by the two state legislatures in 1922, the Comprehensive Plan was a "blueprint for vast new rail and freight-terminal investments across the bi-state region, affecting the economic growth and social patterns of hundreds of local communities and thousands of people- a blueprint to be shaped mainly by general principles of coordination and efficiency" (Doig, 2001, p. 77). The Plan focused on the reorganization of the

freight handling system and reduction of waterfront congestion caused by redundant facilities (Bird, 1969).

The Port of New York Authority's early focus (throughout the 1920s and 1930s) centered on coordinating the many facets of freight delivery into a single, integrated system (one that allowed for freight to move from the western US to the Port of New York in the most efficient means possible). Freight movement in the early twentieth century was characterized by congestion and high costs. The proposed efficiency of an integrated system would make the Port of New York more attractive to commercial enterprises, thereby boosting the economic viability of the region. Two major obstacles stood in the way of a new system: one was physical, the other was proprietary. The physical obstacles were the waterways over or under which freight needed to travel. To address these obstacles, the Port of New York Authority designed, financed and constructed two tunnels (Holland and Lincoln) and four bridges (Goethals, Outerbridge Crossing, Bayonne, and George Washington) between 1927 and 1937 that radically changed freight movement from rail and lighters to trucks.

While the Port of New York Authority was extremely successful in overcoming the water obstacles, the bi-state agency had no success with overcoming the other major obstacle convincing the various private railroad companies to work together for the good of the port. The agency's plan was to construct a few terminals where all freight from the rail lines would be sorted and sent out for local delivery, thereby reducing the number of truck delivery trips required. This efficiency would result in less congestion. The rail companies

balked and in 1931 the Port Authority of New York determined that its efforts to unify freight rail delivery had been futile (Doig, 2001).

The Port of New York Authority's experiences in the agency's infancy related to a coordinated freight delivery system helped it set a course and strategy for unifying the port (as is discussed in Section 6.1).

5.3 Waterfront Land Uses on the Lower Hudson and East Rivers and Upper New York Bay

The lower Hudson and East Rivers and Upper New York Bay waterfronts were transformed dramatically from the early 1800s to approximately 1945. In the early 1800s, transference of cargo and passengers was the dominant activity on the East River side of the southern tip of Manhattan. Over the next 100 years, that commercial maritime activity and its associated industries spread to Manhattan's Hudson River waterfront, Brooklyn waterfront and the shorelines of Hudson County, New Jersey. By the beginning of the twentieth century, 800 miles of waterfront contained facilities, infrastructure and industry that contributed to the operations of the Port of New York. In contrast, the Port of Boston counted 140 miles of waterfront, Baltimore had 120 and Philadelphia used only 37 miles (Doig, 2001).

The following sections highlight the use and transformation of the Port of New York's waterfronts from the early 1800s to about 1940. The Port of New York was a collection of multiple, interconnected components (terminals, infrastructure, waterways, etc.). Although Manhattan, Brooklyn, and the Hudson

County municipalities are discussed separately below, the commercial maritime and industrial activities of each were interconnected.

Figure 5.3 provides the base map used for illustrating waterfront land uses from the 1800s to 2010. It is important to make two clarifications regarding this base map. First, the waterfront outline is based on 2010 conditions: the waterfront did not always have this configuration. For instance, a good portion of lower Manhattan was altered by land fill; the site on which Battery Park City rests is man-made. Similarly, the site occupied by the Military Ocean Terminal at Bayonne (MOTBY) was also created using land fill. A single base map was chosen for the purpose of illustrating and comparing the relative changes in waterfront land uses over a period of almost 200 years. Second, in the figures that illustrate waterfront land uses at various times, the base map is divided in two parts: the northern part is referred to as "Upper New York Bay, Hudson River, East River, New York and New Jersey" and the southern part is referred to as "Upper New York Bay, New York and New Jersey".

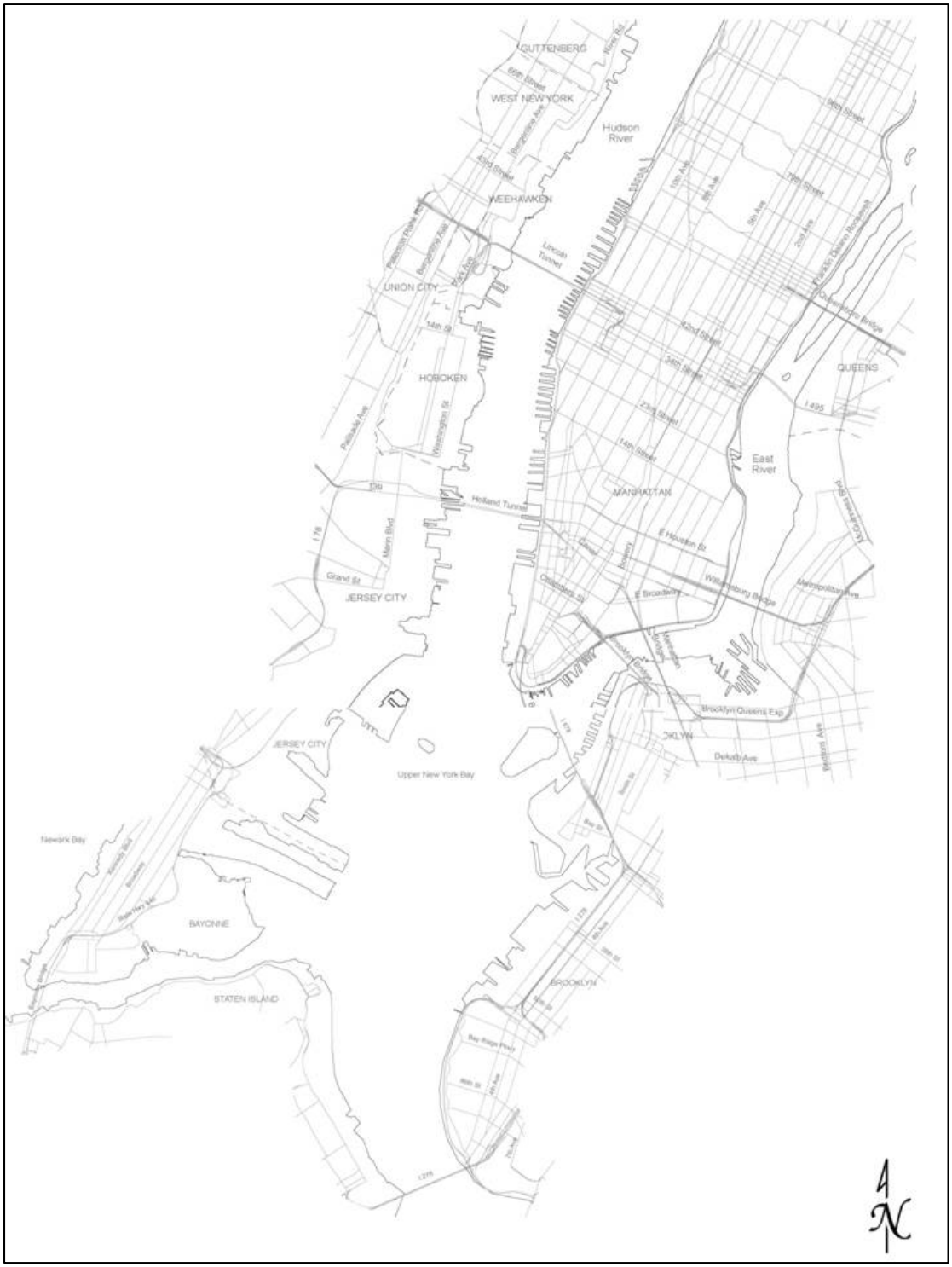


Figure 5.3 Base map for illustrating waterfront land uses from the 1800s to 2010.

Source: Base map- New Jersey Department of Environmental Protection and New York City Department of City Planning GIS Files.

5.3.1 Manhattan

The East River side of the southern reach of Manhattan was the first of the island's waterfront areas to experience maritime activity, mainly because the East River provided protection from ocean winds, tides and ice floats (Squires Bone, 2004). South Street Seaport became the maritime epicenter (Kellner, 2006). The growing demands for boat docking structures and the commercial industries needed to sustain trade required the continuous fill of marshes and the construction of bulkheads to create and then increase the size of a useable waterfront (Squires Bone, 2004). As the East River became crowded with maritime traffic and larger vessels had difficulty maneuvering, maritime development began to expand to Manhattan's Hudson River and Brooklyn's Upper New York Bay waterfronts (Buttenwieser, 1987). Figure 5.4 illustrates the general location of maritime activity in 1829.

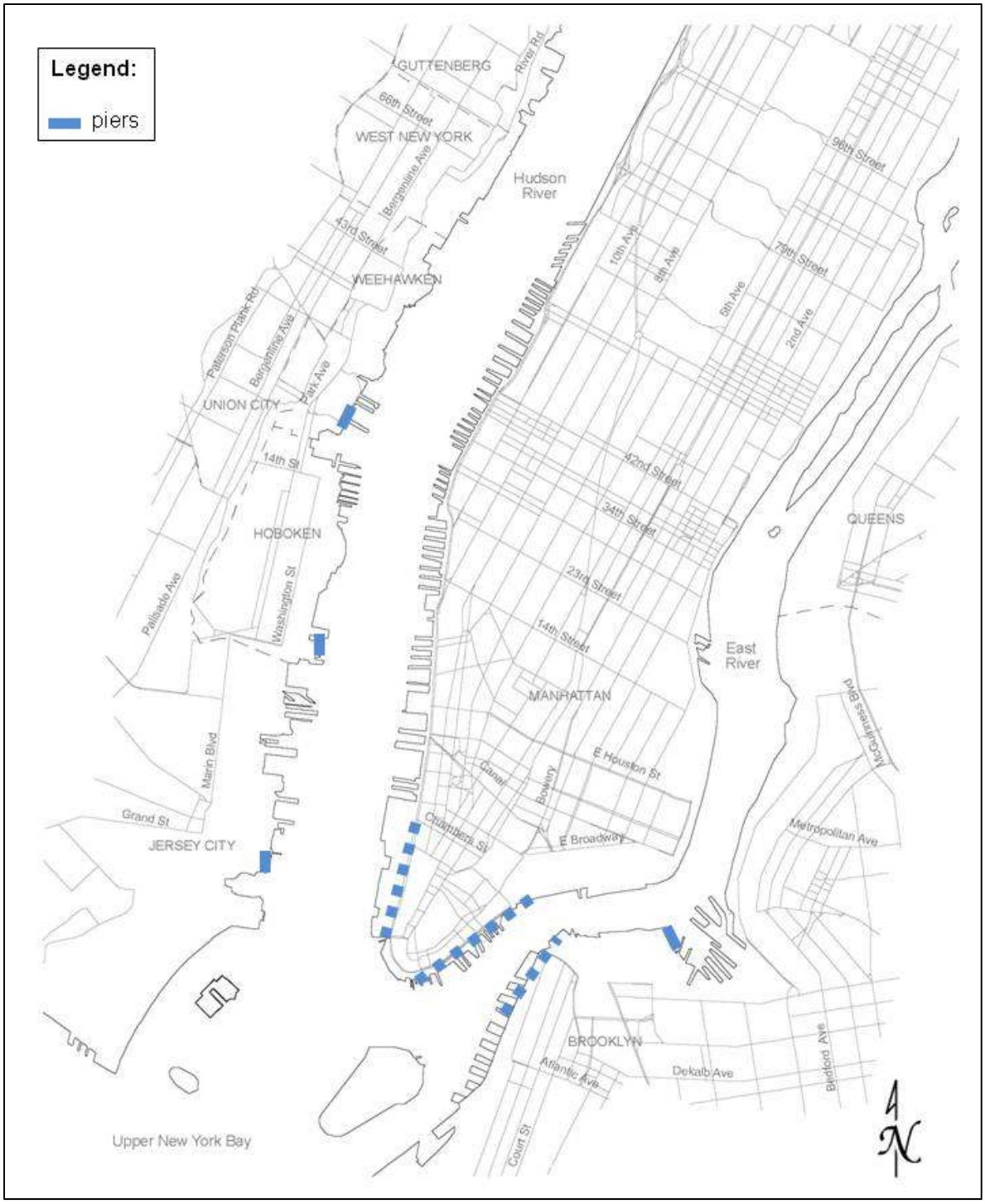


Figure 5.4 General locations of piers in the Port of New York in 1829. Piers constructed from the shoreline into the rivers are shown in blue.

Source: D.H. Burr, 1829.

By the late 1800s, Manhattan's waterfront (from Corlear's Hook on the East River around the southern tip of Manhattan, except for Battery Park, and extending north along the Hudson River to approximately 34th Street) was solely dedicated to the transference of cargo and passengers to and from sea and shore (see Figure 5.5).

Figure 5.5 *Bird's eye panorama of Manhattan & New York City in 1873.* Lithograph. George Schlegel Lithographers. This lithograph illustrates the dominance of port activity (piers, wharves, boats) on lower Manhattan (center), Brooklyn (right) and Hudson County (left).

Source: http://en.wikipedia.org/wiki/File:Manhattan00.jpg.

Peppered on the southern reaches of the island and along the Hudson River north of 34th Street were railroad tracks, yards, piers and docks (see Figures 5.6). Maritime activity on the East River waterfront included ship yards,

the Fulton Fish Market, steam ship lines and packets bearing the names of their destinations- New London, Maine, New Haven, Baltimore, Savannah, New Orleans, Key West, Cuba, and Liverpool Maritime activity on the Hudson River waterfront included steamship lines and packets to Boston, Portland, Savannah, Charleston, London, Liverpool, Brazil, Havana, and Mexico. A lumber yard, and iron and steam boat company were also present (Bien Vermeule, 1891; Watson, 1891; Drips, 1867; Pidgeon Robinson,1886; Hopkins, 1908; J.B. Beers, 1887).

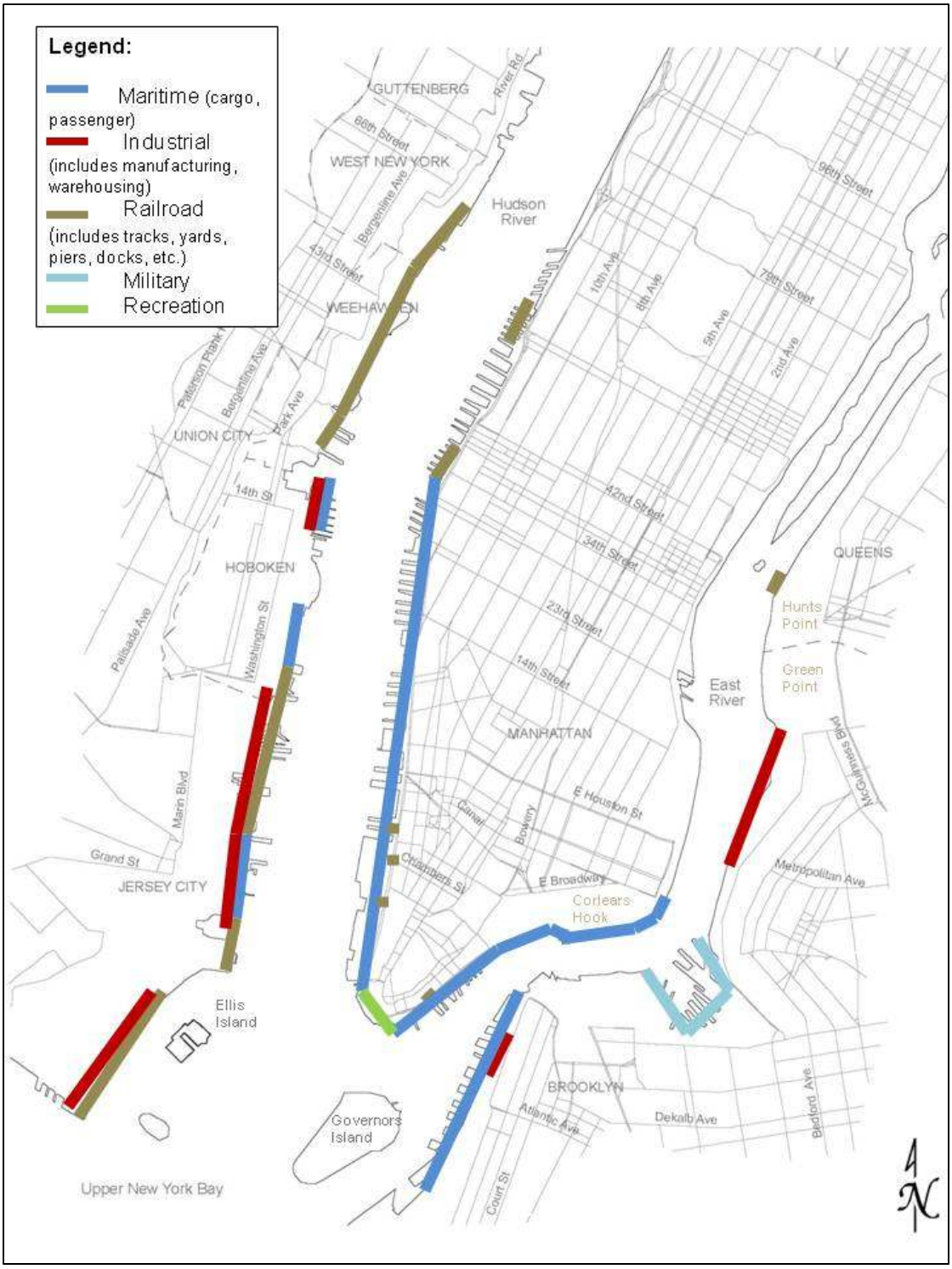


Figure 5.6 General locations of waterfront land uses in the late 1800s, Upper New York Bay, Hudson River, East River, New York and New Jersey.

Sources: Bien Vermeule, 1891; Watson, 1891; Drips, 1867; Pidgeon Robinson,1886; Hopkins, 1908; J.B. Beers, 1887.

By 1900, the Manhattan shores were lined with piers, docks, wharves, rail lines and rail yards (see Figure 5.7). The waters were filled with boats, ships, tugs, barges, and car floats. Piers owned by the railroad companies were used for docking lighters and carfloats which transported cargo to and from the rail yards in Hudson County (Buttenwieser, 1987). Ferry boats transported people from Manhattan to Brooklyn, Staten Island and New Jersey and back, as ferries were the only means of crossing the rivers and bays in the early 1900s (Kellner, 2006). Over 20 streets terminated at ferry slips where over a dozen routes transported passengers to waiting rail cars in Hudson County. Almost 20 additional routes transported passengers from the island to the other New York boroughs (Buttenwieser, 1987). The most noticeable changes in waterfront land uses from the late 1880s to 1930 are the predominance of railroad operations on the East River side, NY Edison Consolidated Gas Company, and two produce terminals (Belcher Hyde, 1929; Bromley, 1930; Hopkins, 1928, 1933) (see Figure 5.8).

Figure 5.7 *Piers at foot of Wall Street, New York, N.Y. between 1900 and 1910*. Photograph. This photograph captures the commercial maritime activities on lower Manhattan at the turn of the century.

Source: Library of Congress, Prints Photographs Division, Detroit Publishing Company Collection, [reproduction number LC-D4-33935].

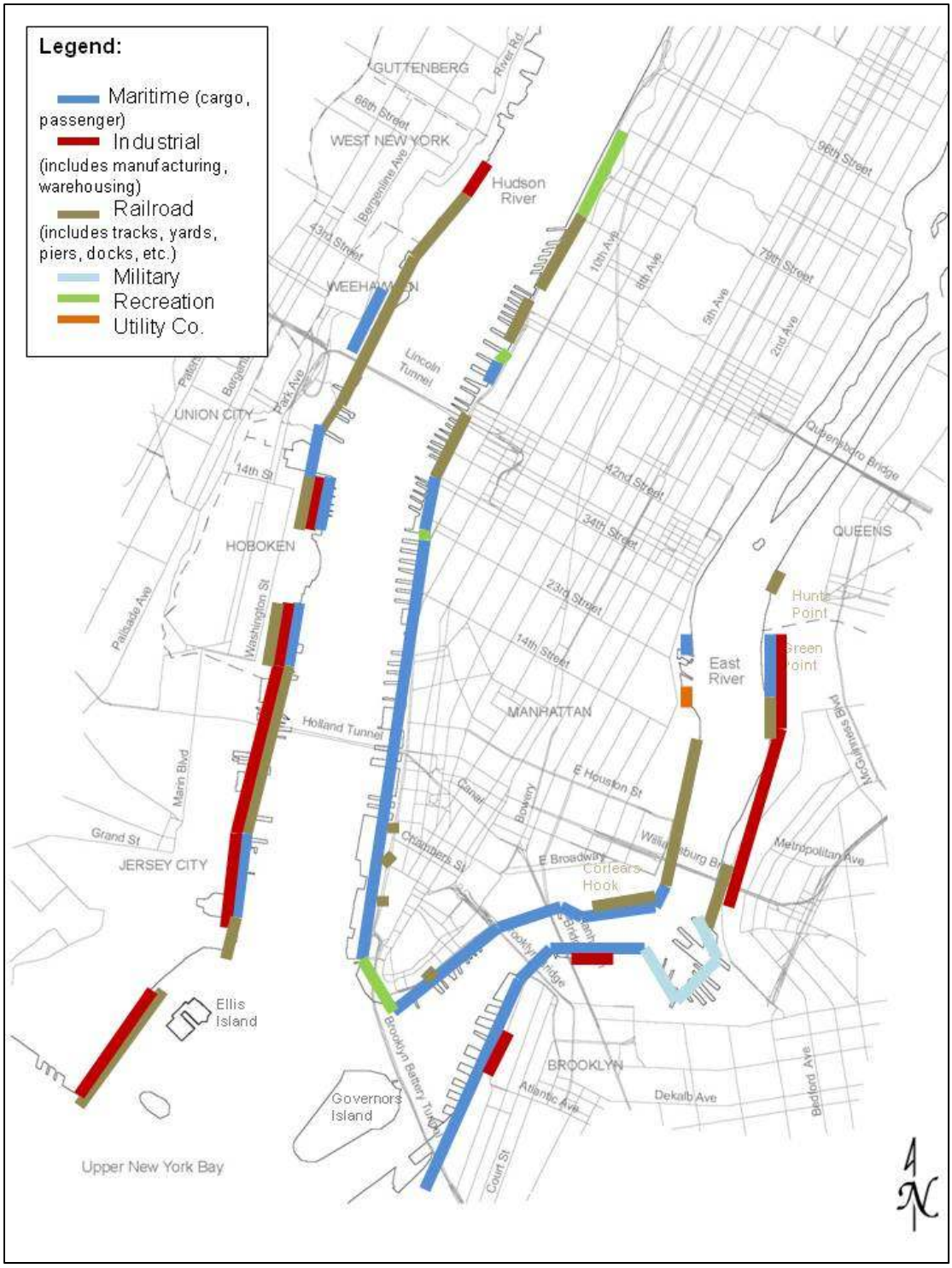


Figure 5.8 General locations of waterfront land uses, approximately 1930, Upper New York Bay, Hudson River, East River, New York and New Jersey.

Source: Belcher Hyde, 1929; Bromley, 1930; Hopkins, 1928, 1933.

The businessman engaged in trade viewed waterfront parks as a hindrance to the maritime industry (Buttenwieser, 1987). Except for Battery Park, in existence since the 1700s and floating swimming pools which existed in the late 1800s, waterfront recreation did not emerge until the early 1900s with Thomas F. Smith Park between 22nd and 23rd Streets, a recreation pier on 50th Street, and Riverside Park, extending north from 59th Street (Belcher Hyde, 1929; Bromley, 1930; Hopkins, 1928, 1933) (see Figure 5.8).

5.3.1.1 Changes on the Manhattan Waterfront. While commerce in the Port of New York was still going strong, struggles over and subsequent changes to waterfront land uses began in the early 1930s. New York City Parks Commissioner Robert Moses, the Women's League for the Protection of Riverside Park, the Chamber of Commerce, and developers were all eyeing waterfront real estate for non-maritime use. Railroad companies in particular were struggling to hold onto their waterfront locations and their businesses, although the increased usage of trucks was significantly impacting them (Wise, Woods & Bone, 2004). The New York Department of Docks (DOD), which was created in 1870, was responsible for developing a waterfront master plan and overseeing the repair and construction of New York City owned piers and docks. These city-owned facilities were leased to individuals for the conduct of private businesses (Betts, 2004; Griffin, 1959). While the DOD was responsible for construction of some major piers, breakwaters and retaining walls, by the late 1930s the DOD was selling off city-owned piers for non-commercial uses. Additionally, privately owned waterfront property formerly used for maritime

purposes was being redeveloped. New uses included hospitals, apartment buildings and parks (Betts, 2004). The East River Park, which extended from Montgomery Street to 12th Street on the lower East side opened in 1939 on the former site of a shipping yard (Buttenwieser, 1987).

Major roadways were being constructed along the waterfronts to accommodate the movement of truck-carted cargo and private automobiles. An elevated Miller Highway (later named West Side Highway) ran along the Hudson River waterfront beginning in 1931. On the East River side, the East River Drive (later named the Franklin Delano Roosevelt Drive) was constructed from the Battery to 125th Street in 1941. Both roads effectively walled off the river from the rest of the city (Gastil, 2002).

Commercial port businesses and infrastructure had been the dominant waterfront land use in lower Manhattan since the early 1800s. By the late 1930s, this dominance weakened.

5.3.2 Brooklyn

While a few piers existed along the Brooklyn shoreline in the early 1800s (see Figure 5.4), it was not until Manhattan's waterfront became congested that sights were set on increasing capacity on the northern Brooklyn shore. On its large tracts of undeveloped land Brooklyn offered the ability to support the port's ever increasing demands for piers, wharves and docks and upland structures. As with Manhattan, the Brooklyn shoreline required modification to accommodate the growing maritime industry. By the mid 1800s, fill was placed along the East River to extend the land area; and construction of the Atlantic Basin, Erie Basin

and the Brooklyn Naval Yards was either underway or completed (Squires Bone, 2004). The widening of the Gowanus Canal and improvements to Newton Creek supported and encouraged the growth of Brooklyn s commercial maritime and industrial activities. These modifications encouraged the construction of numerous piers, dry docks, and warehouses (Pollara, 2004b).

By the late 1800s (see Figures 5.9 and 5.10), the Brooklyn waterfront was lined with: ferry piers; the Brooklyn Naval Yard (see Figure 5.11); Brooklyn Tobacco Inspection; ship building and repair companies; sugar refineries; warehouses, such as Bush Terminal that stored grain, bamboo, tin, rubber, green coffee, and spices; and lumber yards stretching from Williamsburg to Greenpoint (Bone, 2004; Pidgeon Robinson, 1886; Pollara, 2004b). The world s greatest concentration of ship building and repairs in the late 1800s was along the Brooklyn waterfront (Albion, 1984).

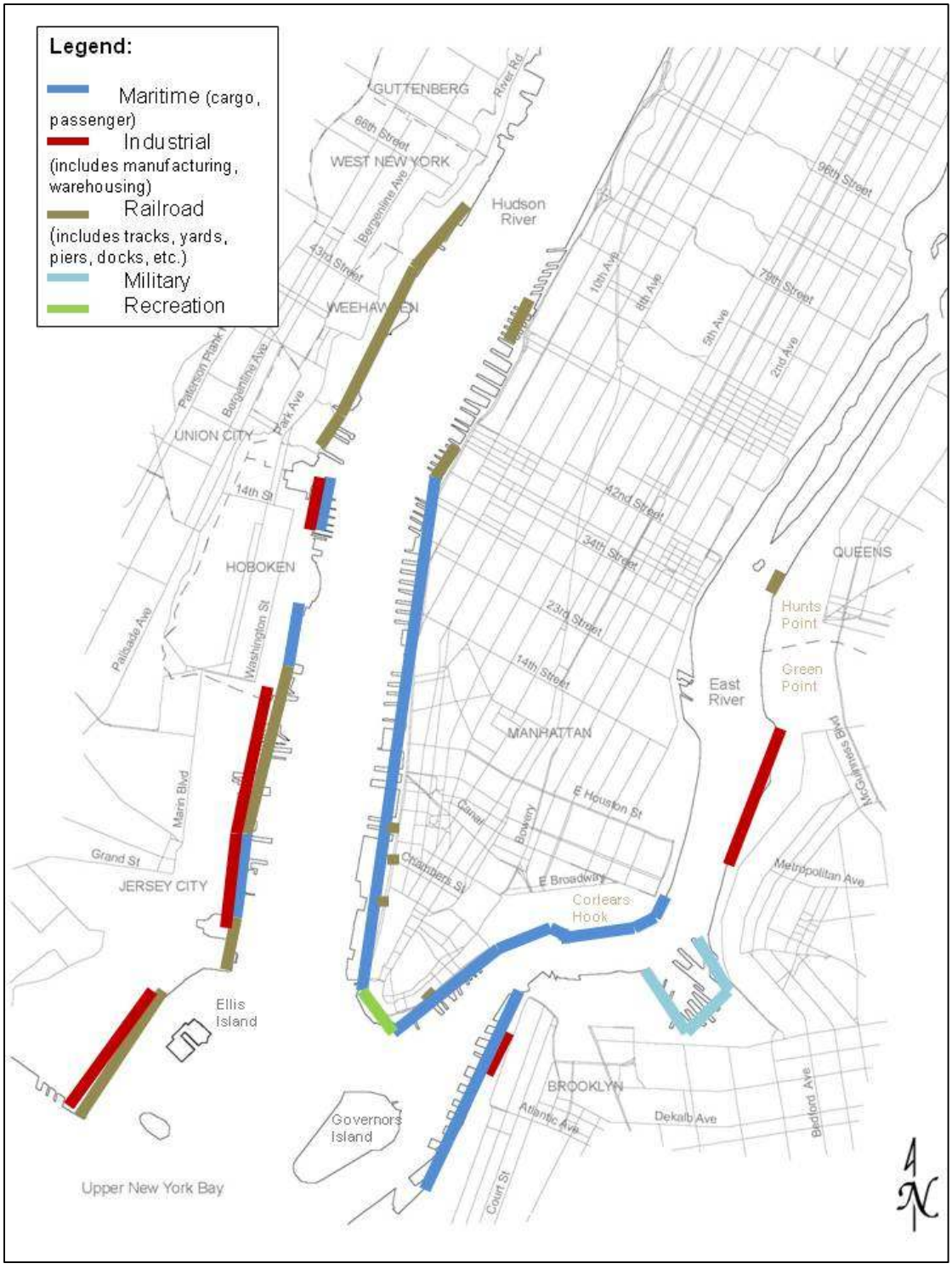


Figure 5.9 General locations of waterfront land uses in the late 1800s, Upper New York Bay, Hudson River, East River, New York and New Jersey.

Sources: Bien Vermeule, 1891; Watson, 1891; Drips, 1867; Pidgeon Robinson,1886; Hopkins, 1908; J.B. Beers, 1887.

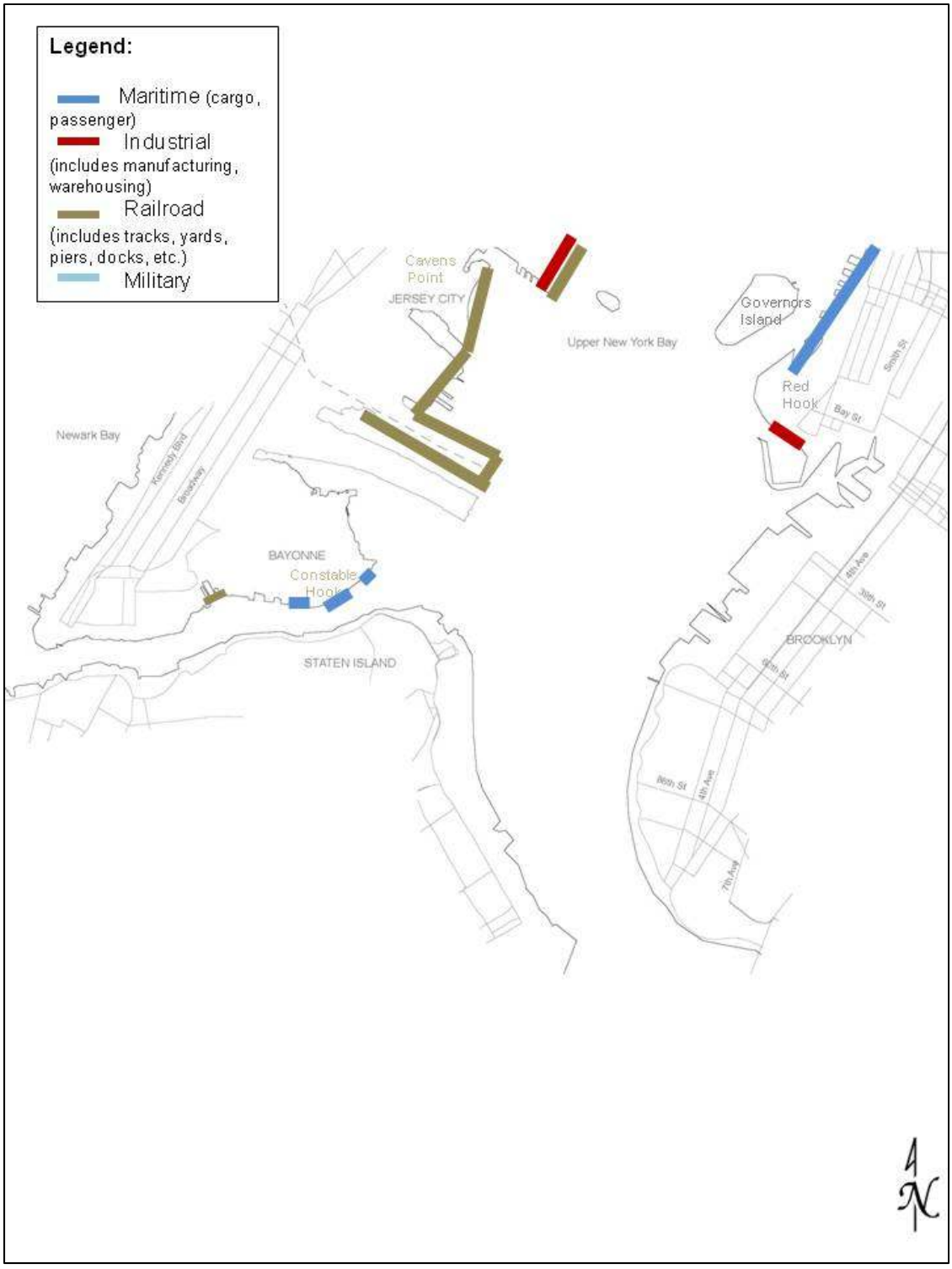


Figure 5.10 General locations of waterfront land uses in the late 1800s, Upper New York Bay, New York and New Jersey.

Sources: Bien □ Vermeule, 1891; Watson, 1891; Drips, 1867; Pidgeon □ Robinson, 1886; Hopkins, 1908.

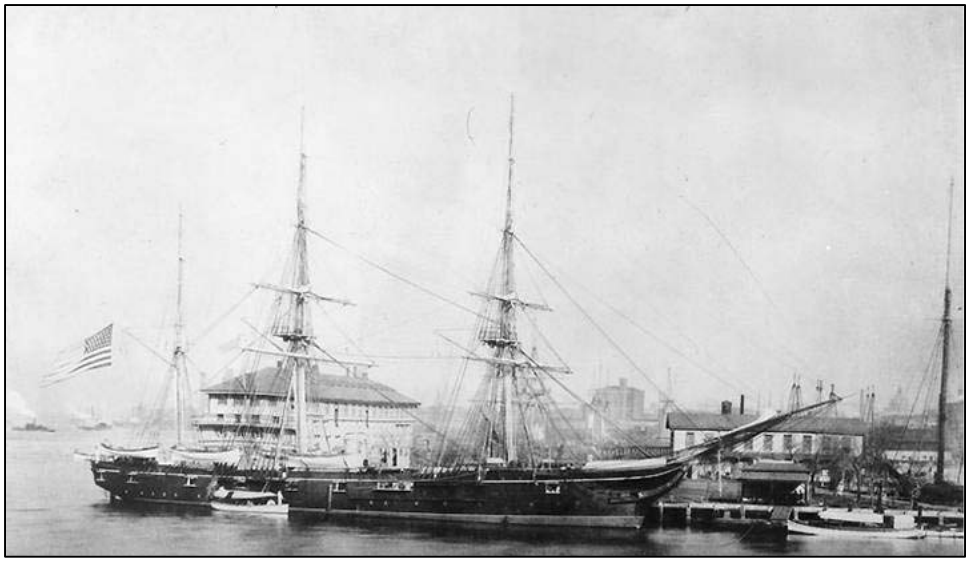


Figure 5.11 USS Enterprise at the New York Navy Yard, circa Spring 1890. Photograph.

Source: Photographed by E.H. Hart, New York City.
U.S. Naval Historical Center Photograph. http://www.history.navy.mil/photos/sh-usn/usnsh-e/entrp5.htm.

In addition to those enterprises, by 1930 the Brooklyn waterfront included the Brooklyn Army Terminal (a military ocean supply facility); various steamship lines named Baltic, Hawaiian, Porto Rico, Houston, Trinidad, and Royal Netherlands; Domino Sugar Refining Company; American Sugar Refining Company; Standard Oil Company, New York Dock Company (a huge pier warehouse system); and Isthmian Steamship Company whose terminal could berth four large freighters simultaneously (Belcher Hyde, 1929; Bone, 2004). As depicted on Figures 5.12 and 5.13, most of the Brooklyn waterfront in the study area was occupied by maritime and industrial uses. By the mid 1940s, most of the piers were under private ownership. During the two World Wars, the Brooklyn waterfront became a port of embarkation for US military personnel (PANYNJ, nd).

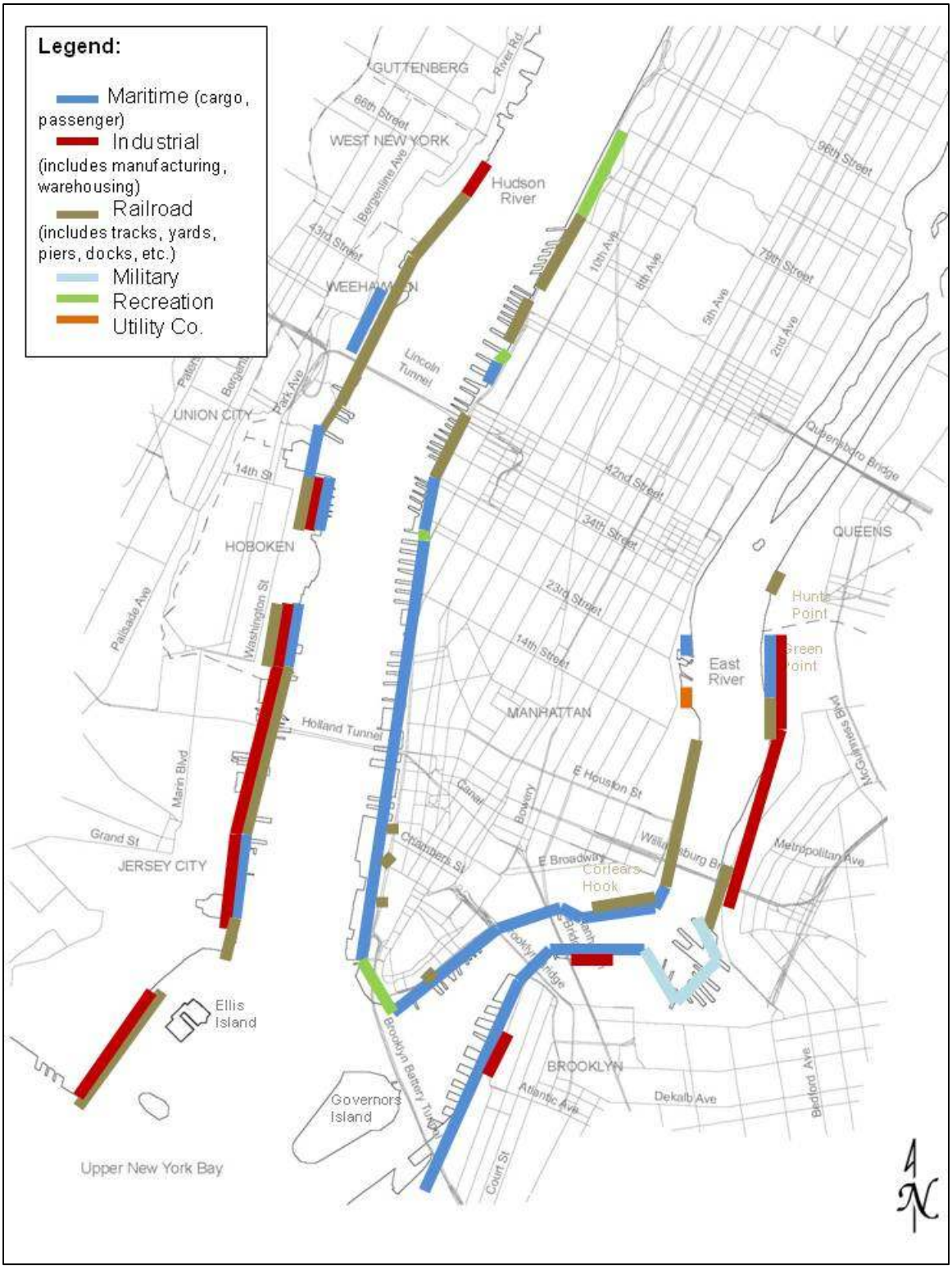


Figure 5.12 General locations of waterfront land uses, approximately 1930, Upper New York Bay, Hudson River, East River, New York and New Jersey.

Source: Belcher Hyde, 1929; Bromley, 1930; Hopkins, 1928, 1933.

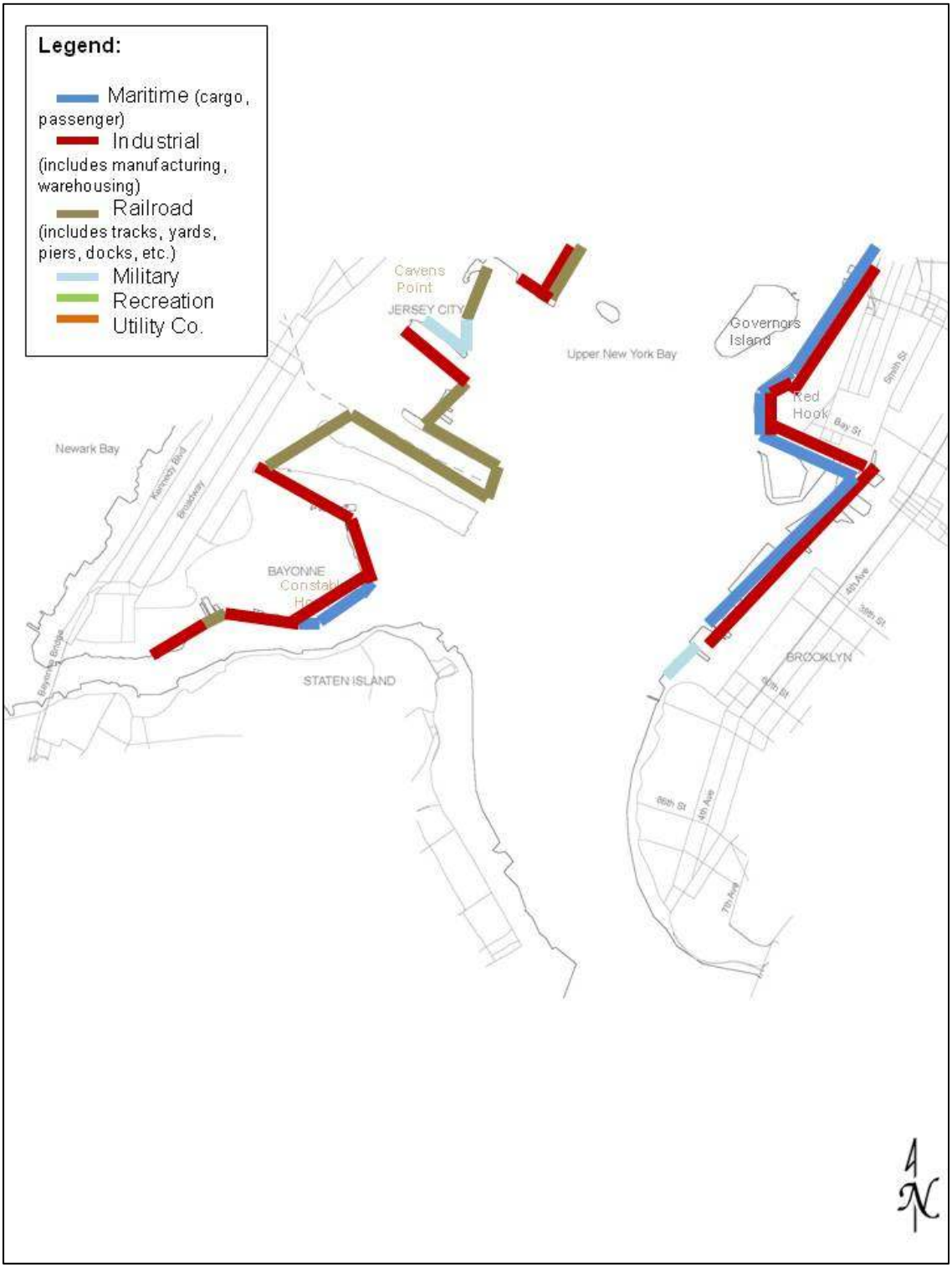


Figure 5.13 General locations of waterfront land uses, approximately 1930, Upper New York Bay, New York and New Jersey.

Sources: Belcher Hyde, 1929; Bromley, 1930; Hopkins, 1928, 1933.

5.3.3 Hudson County

While the Manhattan and Brooklyn shorelines were occupied by marine terminals and related infrastructure, the Hudson County shoreline was covered with railroad tracks and yards, ferry slips, piers, and car float facilities (see Figures 5.9, 5.10, 5.12 and 5.13). From 1853 to 1900, the Erie Railroad; Central Railroad of New Jersey; Delaware, Lackawanna, and Western Railroad; West Shore Railroad; Pennsylvania Railroad; and Lehigh Valley Railroad had established tracks extending to the Hudson River water's edge in New Jersey. Because of this terminus, rail yards, docks, barges and ferries were established along the Hudson River shorelines of Hudson County, New Jersey (see Figure 5.14).

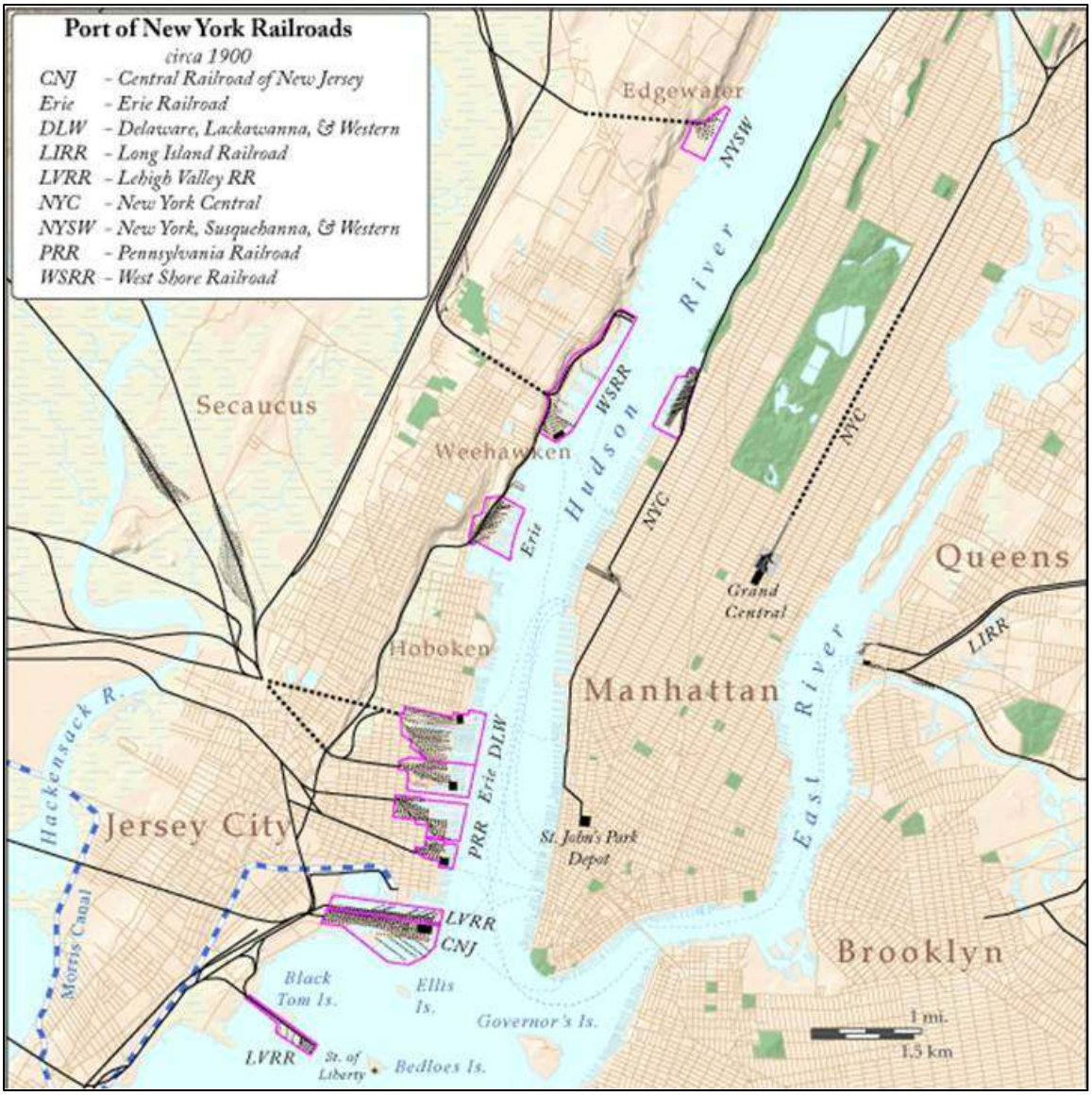


Figure 5.14 Port of New York railroads, 1900. This illustration shows the predominance of railroad activities along the Hudson River waterfront in Hudson County.

Source: James R. Irwin, http://en.wikipedia.org/wiki/File:New_York_City_Railroads_ca_1900.png.

On the New Jersey shoreline, the railroad companies built classification yards in which a series of tracks were constructed side by side and railroad cars were sorted by destination. The cargo was offloaded from the trains to car floats (unpowered barges). On the New York shoreline, the railroads built and

operated piers and warehouses for the offloading of cargo and ultimate transfer to other vessels for transport. Other cargo was then placed on the car floats and tugged to the New Jersey shoreline and loaded onto waiting rail cars. This system of lightering was the chief transfer of cargo between the railroads in New Jersey and the commercial maritime facilities in New York (Kellner, 2006; Bird, 1949). The railroad dominated the Hudson County shoreline.

While the predominant use of the Hudson County waterfront was dedicated to railroad operations, the maritime industry had a significant presence as well (see Figures 5.9, 5.10, 5.12, 5.13). Steamship lines in Weehawken included Black Diamond Lines and Antwarp-Rotterdam. Hamburg American Line Terminal and Navigation Company, North German Lloyd Dock Company, American-France Lines, Atlantic Boat Company, Holland-American Line (see Figure 5.15), and Scandinavian American Line occupied the Hoboken shorelines. Iron Works and Ship Yard and Union Dry Dock and Repair Company were located in Hoboken and Weehawken, respectively (Hopkins, 1928 and 1933).

Figure 5.15 The Hoboken waterfront. 1905. Photograph. The Holland America steamship line facility extending into the Hudson River is shown.

Source: Hoboken Historical Museum.

5.3.4 Jersey City

Jersey City's location along the Hudson River across from New York enhanced the city's growth during the Industrial Revolution. Three pivotal events solidified Jersey City's vital role in the Port of New York: the extension of the Morris Canal, the establishment of a major steamship line, and construction of railroad tracks, yards and docks. The Morris Canal, which originated in Pennsylvania, was extended through Jersey City to its Hudson River terminus in 1836. While various manufactured products, raw materials, agricultural goods, and construction supplies were transported on this canal, its major passenger was anthracite coal. Also known as "black gold", the transport of anthracite coal to

Jersey City was not only a major contributor to local industry, it necessitated the construction of warehouses, freight facilities, and maritime infrastructure for its movement across the Hudson River to New York (Canal Society, 2010).

Eleven years after the Morris Canal was extended into Jersey City, Samuel Cunard built a major terminal in Jersey City. As Cunard Line was the first international steamship and passenger line, its terminal location on the Jersey City shoreline was a major boost for the Jersey City economy (Albion, 1984; Griffin, 1959).

By the beginning of the twentieth century, all but 400 feet of the Jersey City shoreline was under railroad control (World Trade for Jersey City, 1919) and 90 percent of all the railroad freight lightered between New York and New Jersey was transported from the Jersey City shoreline (Raciti, 1968).

The dominance of the railroad industry in Jersey City and its link to the Port of New York was a major draw for industry to establish itself in Jersey City (Raciti, 1968). Intertwined with the railroad facilities, occupants of the Jersey City waterfront included: Standard Oil Company, Eagle Oil Company, Colgate and Company, Vulcan Iron Works, Castor Oil Works, Jersey City Stock Yard Company with open cattle pens, live hog and sheep storage and a hide room; warehouses, freight houses (railroad buildings), locomotive repair shops, blacksmith shops, ferries, floating dry docks, a ship yard, a lumber yard, and machine shops (Hopkins, 1908, 1928, and 1933). Major industries located within the city (but not on the waterfront) included: slaughtering, meat packing, tobacco,

ship building, sugar, oil, foundry products, lumber, iron work, rubber goods, chemicals, pottery and glass (Cunningham, 1954; Raciti, 1968).

5.3.5 Bayonne

The City of Bayonne's role in the Port of New York centered on oil. In the early 1900s Constable Hook, the south eastern tip of Bayonne bordered by the Upper New York Bay and Kill Van Kull had the largest concentration of tank farms and petroleum refineries on the east coast (Port Authority of New York and New Jersey, 1979). Beginning in 1875 when Prentice Oil Company established a crude oil refinery in Bayonne (Cunningham, 1954), Bayonne began over a century's long occupation with storing and refining oil. Lombard Ayres and Company, Polar Oil Company, and Standard Oil Company of Cleveland constructed refineries in 1877. Tide Water Oil Company and Standard Oil Company constructed pipelines from Pennsylvania to Bayonne in the late 1800s. In 1901, Gulf Refining Company established a Bayonne presence (Cunningham, 1954).

CHAPTER 6

CHANGING TIMES: 1940s – 1980s

A number of factors, over a thirty year period in the mid-twentieth century, led to changes in the historic commercial maritime and associated industrial uses on the Hudson and East Rivers and Upper New York Bay waterfronts. These included: economic changes, technological advancements, constraints to available land and existing maritime facilities, and political resistance. Changes in manufacturing, transportation systems, and freight handling methods, coupled with the conditions and constraints of the maritime infrastructure and waterfront land ultimately led to the abandonment of this port waterfront. For the Port of New York Authority, the underlying theme (and challenges) of this time period was the creation of "one port".

Figure 6.1 is a timeline of the significant events, activities and conditions affecting the port and the waterfronts from the 1940s through the 1980s that are discussed in this chapter. In this figure, the significant events, activities and conditions affecting the port and the waterfronts are grouped under five categories: waterfront activities, innovation, challenges, planning and authority and control.

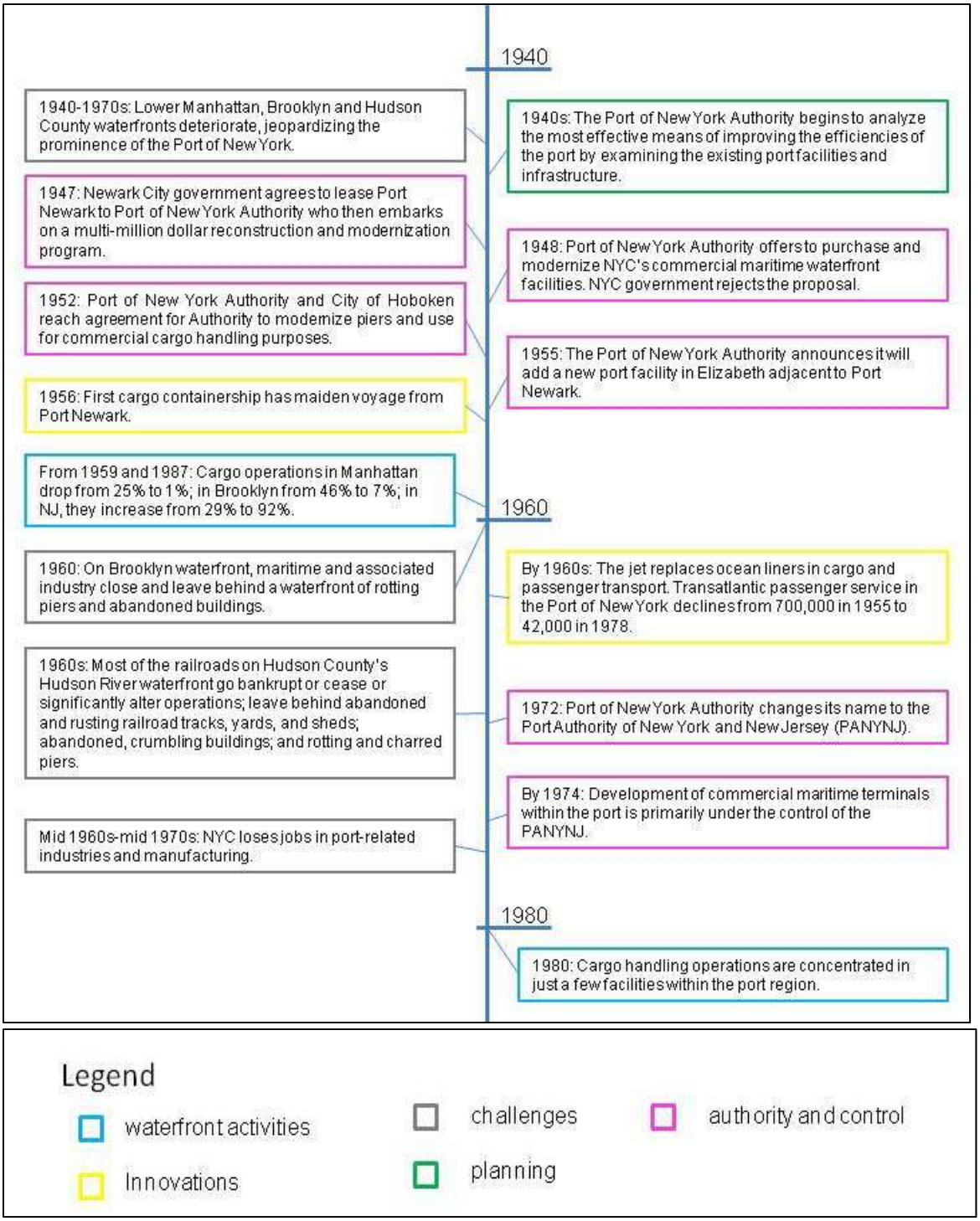


Figure 6.1 Timeline of significant events, activities and conditions affecting the port and waterfronts from 1940 through the 1980s.

6.1 Efforts Toward Controlling and Unifying the Port

As noted by Doig (2001), the Port of New York Authority's Comprehensive Plan (issued in 1921) was a "blueprint for vast new rail and freight-terminal investments across the bi-state region" (p. 70), but the rail companies balked and efforts to unify the freight rail delivery system were discontinued. In addition to the rail issues, the Port of New York Authority's major activities prior to the mid-1940s focused on bridging and tunneling the waterways for vehicular movement. During the period of the 1940s through the 1980s, the Port of New York Authority (renamed the Port Authority of New York and New Jersey in 1972) focused its port unification efforts in the areas of truck terminal operations and commercial maritime facilities. During this time period, the Port of New York Authority, with one eye still on New York commercial maritime facilities, began to focus on New Jersey for port business opportunities.

A 1943 upper management report reviewed by Doig for his seminal work on the Port of New York Authority *Empire on the Hudson* (2001) revealed the Authority's strategies for unifying the port with the aim of creating and maintaining it as a "gateway of world commerce" (Doig, 2001, p. 251). These strategies included the establishment of a Port Planning Department responsible for developing economic and engineering feasibility studies of new facilities, including truck and marine terminals in New York *and* New Jersey. Since many of the marine terminals in New York and New Jersey were owned by the municipalities (the rest by private entities), the Port of New York Authority was concerned that competition (rather than the desired regional cooperation)

between the states and cities would interfere with the Authority's vision of one port as a world commerce gateway. The Port of New York Authority devised a plan to obtain control (through ownership) of these marine (as well as air) facilities as a step toward a unified port.

During the 1940s and 1950s, the Port of New York Authority conducted various economic studies relative to commercial maritime (and airport) issues and ensured their wide release and favorable acceptance by the press. That continuous publicity enhanced the Port Authority's image as a commercial maritime (and airport) expert. Soon elected officials were requesting the Port of New York Authority's assistance, and then take over (through ownership or lease) of decaying maritime (and airport) facilities. Of course, the facilities the Port of New York Authority obtained through this process were part of their overall plan to control and unify the port (Doig, 2001).

The New York City Department of Docks, created in 1870 to improve waterfront infrastructure and promote and expand maritime and commercial activities, changed dramatically from the 1940s to 1970s as a result the Port of New York Authority's evolving dominance and the city's dwindling financial resources. During this time period, the DOD's name changed to the Department of Maritime and Aviation, and then to the Department of Ports and Terminals. While the Port of New York Authority effectively gained control over the city's airports and pier and terminal projects, by the 1970s, the former DOD was relegated to merely review and comment on waterfront construction plans (Betts, 2004).

6.2 Changes in Commercial Maritime, Transportation and Industrial Activities

6.2.1 Economic Changes

While World War II (1939-1945) and the Korean War (1950-1953) had positive impacts on the Port of New York's economy, primarily in the ship building industry and war-related manufacturing, the Port of New York region experienced a downward economic shift after the Korean War. A shift in industrial practices and transportation modes allowed for the relocation of industries that once required waterfront presence (PANYNJ, 1979). A slow exodus of manufacturing began to occur. With so little room for expansion, a dense population, aging infrastructure, and the shift in transportation from sea vessels and railroads to trucks, industries began to leave for more wide open and less expensive locations (Bierbaum, 1980). In a twelve year period beginning in 1964, New York City lost 70,000 jobs in port-related industries, while nationally, similar employment rose over 30 percent (Levinson, 2006). By the mid-1970s, employment in the New York manufacturing industry had declined by 50 percent (Shell, nd).

6.2.2 Changes in Transportation

Technological innovations in the movement of goods and people and the increased popularity of these innovations affected the Port of New York. Just as the railroads had once replaced canal movement of goods, trucks were now replacing the railroads. In the US, between 1946 and 1950, long distance truck

traffic more than doubled and by 1963 most manufactured goods were transported by truck (Levinson, 2006). The greater efficiency of truck hauling over transporting by rail was enhanced by the creation of the National Interstate Highway System that had begun in the late 1950s. In addition, the creation of pipelines diminished the need for railroads to carry oil and gas (Raciti, 1968). In the 1960s, most of the railroads that had dominated the Hudson County waterfront (refer to Figure 5.13) either went bankrupt (CCRNJ, LVRR) or ceased significantly altered operations (Erie, DLW, WSRR) (Hampson, 2007).

By the 1960s, the invention and increased popularity of the jet replaced the ocean liners in cargo and passenger transport (Kellner, 2006). Transatlantic passenger service in the Port of New York declined from 700,000 in 1955 to 42,000 in 1978 (Buttenwieser, 1987).

6.2.3 Changes in Cargo Handling

Increased shipment of cargo to the Port of New York from around the world, coupled with the increased use of trucks, highlighted inefficiencies in the cargo handling system. Lower Manhattan s street system had been constructed for smaller vehicles. The increased size of trucks carrying cargo as well as the number of trucks navigating the New York streets in and around the dock areas caused a tremendous amount of congestion and contributed to the inefficiency of moving freight (Shell, nd). By 1950, 50 percent of the cargo arriving in the port area was transported by trucks, and these trucks waited up to two hours at the docks before they were unloaded or loaded (Levinson, 2006).

The inefficiencies were not limited to street congestion. The break bulk method of unloading and loading cargo was time and labor intensive (see Figure 6.2). Each truck and train car was unloaded, piece by piece, tallied, stored on the waterfront, and then loaded onto a ship. Conversely, when ships arrived in the port, the reverse process occurred (Levinson, 2006).

Figure 6.2 *Stevedores on a New York dock loading barrels onto a barge on the Hudson River, ca. 1912.* Photograph. The process of stevedores loading a ship, barrel by barrel is shown.

Source: National Archives at College Park, Maryland.

The advent of two major technologies in the late 1950s changed the way cargo was handled resulting in increased efficiency and time savings. Specialized ocean going vessels were built to allow wheeled cargo, such as automobiles, to drive on and off. This was called Roll-on roll-off (RoRo) method of handling cargo (see Figure 6.3). The second innovation in cargo handling was containerization; cargo is shipped in large metal boxes that are loaded and offloaded to trucks, rail cars and ocean going vessels using specialized cranes (see Figure 6.4). This innovation not only significantly decreased the need for

break bulk handling, it also changed the type of cargo handled. Rather than transporting just raw materials and finished products, containers also carry partially-processed factory parts that are later assembled in different locations around the world (Levinson, 2006). Containerization also changed the labor force and the time needed to off load cargo. Prior to containerization, 125 dock workers took 10 days to offload a ship. Forty workers can offload a container cargo ship in 12 hours (Center for Urban Pedagogy, 2011).

Figure 6.3 Roll-On Roll-Off (RoRo) ship. nd. Photograph. The process of offloading passenger vehicle cargo from a ship is shown.

Source: http: en.wikipedia.org wiki File:Rororamp.jpg.

Figure 6.4 Container cranes at the container-terminal of Bremerhaven in Germany. 2009. Photograph. Cargo ships dock under these cranes. The cranes remove metal box containers from the steps and transport them to waiting trucks or rail cars.

Source: http: en.wikipedia.org wiki File:Container cranes Bremerhaven.jpg.

Both RoRo and containerization technologies required larger ocean going vessels and specialized handling equipment and facilities. The maritime infrastructure constructed decades before along the lower Hudson and East Rivers and Upper New York Bay could not meet these new requirements. Reconstruction of those facilities was nearly impossible for a number of reasons: lack of coordinated commercial maritime and land use planning between the Port of New York Authority and the City of New York and the Hudson County municipalities, shallow waters, and lack of sufficient upland space (Rodrigue, 2005).

6.2.4 Changes in Cargo Handling Locations in the Port of New York

While the Port of New York Authority was created in 1921 to coordinate planning and economic development for the port region (Doig, 2001), during its early years it focused on building bridges and tunnels and unifying the rail freight delivery system (Doig, 2001; Levinson, 2006). In the 1940s, however, at the request of the governors of New York and New Jersey, the Port of New York Authority began to focus on commercial maritime issues, particularly increasing efficiencies in the system of handling cargo (Levinson, 2006). Modernization of maritime infrastructure and consolidation of freight handling processes were of paramount importance. Most of the existing marine terminals, piers, and docks were either decaying or obsolete. Frederick Bird's 1948 study of the Port of New York Authority declared that the poor conditions of the waterfront facilities were jeopardizing the prominence of the Port of New York. Their obsolete designs were insufficient to handle modern vessels; the facilities (that were mostly publically owned) were in disrepair; and there was no integrated means of handling and distributing goods (Bird, 1948). Many of these piers including the East River pier at Roosevelt Street, the Hudson pier at West 26th Street, and the Christopher Street pier were constructed during the 1870s to the 1890s (Levinson, 2006). And with congestion at the docks and on the local roads, more consolidated methods and land areas were needed to gather, sort and transport goods (Doig, 2001). The Port of New York Authority thought that one modern cargo facility could replace a handful of the obsolete facilities on the Manhattan and Brooklyn waterfronts (Tobin, 1955).

The Port of New York Authority began to analyze the most effective means of improving the efficiencies of the port by examining the existing port facilities and infrastructure. The Executive Director of the Port of New York Authority (Austin Tobin) commented in 1955 that the greatest waterfront problem was coordinating planning and development (Tobin, 1955). In New York, the city government owned most of the piers (PONYA, nd). The State of New York had created the World Trade Corporation to oversee the modernization of the maritime infrastructure, and in 1947, it proposed a □200 million program to rehabilitate the waterfront facilities. New York City Mayor O□Dwyer rejected this proposal. Instead, the Mayor requested a proposal from the Port of New York Authority for the modernization of the city-owned maritime facilities. In 1948, the Port of New York Authority offered to purchase the city□s commercial maritime waterfront facilities and finance a modernization program that would include the construction of a dozen new steamship berths, construction of carfloat terminals, and various other rehabilitation projects. In return, the Authority would provide an annual payment to the city. Fearing loss of control over the waterfront□s economic potential and under pressure from the longshoreman□s union, the city government rejected the Port Authority□s proposal (Bird, 1949; Doig, 2001).

At about the same time, Governor Driscoll of New Jersey also asked for the Port of New York Authority□s assistance, specifically in surveying the commercial maritime facilities on New Jersey□s lower Hudson River and Upper New York Bay waterfronts. The Authority concluded that the most promising areas for modernizing commercial maritime infrastructure were on the Hudson

River waterfront in Hoboken and the Newark Bay waterfront in Newark (Raciti, 1968).

The federal government had taken over the German operated piers in Hoboken during World War I and used them as a point of embarkation for American troops. After the war, the piers had remained under federal government control to the dismay of the city government who wanted viable economic activity to return to the city. The Port of New York Authority offered to finance modernization of the piers and enter a lease arrangement with the City of Hoboken that would require the Authority to make an annual payment to the city government. After years of negotiations, an agreement was reached in 1952, after which the Port of New York Authority invested millions of dollars in rehabilitating and modernizing the piers (Doig, 2001). The piers were then used for commercial cargo handling purposes.

The Port of New York Authority also set its sights on an already existing port operation in the City of Newark on Newark Bay, which had a vast upland area. The City of Newark had been operating a port since the early 1900s. During the World Wars, the US government occupied portions of the port at the detriment to the city s economic development potential. By the end of World War II, the port facilities were in need of rehabilitation. After evaluating the Port of Newark s conditions and potential, the Port of New York Authority proposed to lease and modernize the Port of Newark. In 1947, the Newark City government agreed to this proposal. The Port of New York Authority embarked on a multi-million dollar program that included: reconstruction of maritime infrastructure,

rehabilitation of transit sheds and warehouses, repair of rail facilities, construction of roadways, and dredging of the channels. All of this was intended to increase the capacity and efficiency of commerce operation. From the time the Port of New York Authority invested in the Port of Newark's upgrade to 1966, the number of vessels docking at the Port of Newark, the number of jobs, and employee wages all tripled. Major imports handled at the Port of Newark included automobiles, frozen meats, salted cod fish, and wine. The major exports were lumber and wood pulp (Bird, 1949; Levinson, 2006).

By the late 1950s, the Port of New York Authority added a site in Elizabeth adjoining the Port of Newark to its port facilities. With the purchase of a 450-acre tract of privately owned tidal marsh land, the Port of New York Authority undertook a substantial port construction project. In 1962, Elizabeth-Port Authority Marine Terminal became the world's first container port (Levinson, 2006). Thus, the Port of New York Authority was successful in implementing a strategy of creating a modern cargo facility in New Jersey that could replace a handful of the obsolete facilities on the Manhattan and Brooklyn waterfronts (Tobin, 1955).

By 1974, development of commercial maritime terminals within the Port of New York and New Jersey was primarily under the control of the Port Authority of New York and New Jersey (with investments over $450 million since 1948) and the New York City Department of Ports and Terminals, which was responsible for managing city-owned waterfront facilities and regulating and supervising use of the city's waterfront (PANYNJ, 1974). The Port Authority of New York and New

Jersey was actively searching for waterfront properties within the port region with deepwater port potential. Their early 1970s survey of waterfront property identified 1,300 acres of undeveloped land suitable for medium to large scale development (PANYNJ, 1974, p. 37). Forty two percent of that land was located on the northern and eastern shores of Staten Island along the Kill Van Kull and the Arthur Kill, while 25 percent was located in New Jersey, primarily on the shores of the Arthur Kill. This survey further demonstrated the lack of available space and deep water in the port's historic geographic locations of Manhattan, Brooklyn and Hudson County (PANYNJ, 1974).

The results of the Port of New York Authority's efforts from the mid-1940s through the 1980s in transforming the Port of New York into a coordinated freight handling system led to the transformation of the waterfronts. Whereas the waterfronts had once been lined with cargo handling facilities, by 1980 cargo handling operations were concentrated in several facilities within the port region. And the Port Authority of New York and New Jersey either owned or operated several of the facilities. According to a report by the Maritime Association of the Port of New York (1982), major cargo handling facilities located in the Port of New York and New Jersey in 1980 were in:

- Manhattan: Piers 36-42 East River owned by the New York City Department of Ports and Terminals
- The Bronx, NY: Hunt's Point food distribution center operated by the New York City Department of Ports and Terminals
- Brooklyn, NY: Brooklyn-Port Authority Marine Terminal owned by the Port Authority of New York and New Jersey

- Brooklyn, NY: Red Hook Container Terminal owned by the Port Authority of New York and New Jersey

- Brooklyn, NY: Northeast Marine Terminal owned by the New York City Department of Ports and Terminals

- Staten Island, NY: Howland Hook Container Terminal owned by the New York City Department of Ports and Terminals

- Jersey City, NJ: the privately owned Global Terminal

- Hoboken, NJ: Port Authority Marine Terminal operated by the Port Authority of New York and New Jersey (on land owned by the City of Hoboken) (see Figure 6.5)

- Newark, NJ: Port Newark operated by the Port Authority of New York and New Jersey (on land owned by the City of Newark)

- Elizabeth, NJ: Elizabeth-Port Authority Marine Terminal owned by the Port Authority of New York and New Jersey

Figure 6.5 Port Authority Piers A, B C, Hoboken, between 1956 and 1959. Photograph. This photo illustrates multiple piers with moored ships jutting into the Hudson River.

Source: Hoboken Historical Museum.

In addition, major petroleum terminals were located in all boroughs of New York except Manhattan. However, the vast majority of petroleum terminals within the Port were located along the Newark Bay, Kill Van Kull and Arthur Kill waterfronts in Kearny, Bayonne, Newark, Elizabeth, Carteret, Port Reading, Perth Amboy, and Sewaren, New Jersey (The Maritime Association of the Port of New York, 1982).

The Port of New York Authority's efforts in transforming the Port of New York into a coordinated, efficient and effective freight handling port led to the rise in commercial maritime operations on Newark Bay, but also led to the decline of similar operations on the lower Hudson and East River and Upper New York Bay waterfronts. Between 1959 and 1987, cargo operations in Manhattan dropped from 25 percent to one percent, in Brooklyn from 46 percent to seven percent, but in New Jersey, it increased from 29 percent to 92 percent (Rodrigue, 2005). Thus, the Port Authority's efforts led to a geographical shift of cargo handling facilities from the original Manhattan, Brooklyn and Hudson County waterfronts to new locations in Brooklyn, Staten Island, Newark and Elizabeth. This led to the abandonment of the original port waterfronts.

6.3 The Port-Abandoned Waterfront

From the 1940s to the early 1980s, the lower Manhattan, Brooklyn and Hudson County waterfronts that were once bustling with maritime and industrial activities deteriorated. Years of industrial pollution, wear and tear on the maritime infrastructure, and economic retreat from the waterfront locations left scars on

the waterfront landscape. On these shorelines, the piers and docks that once proudly contained the maritime prominence of the 1800s and early 1900s were burning, rotting, and falling into the water, causing navigational obstructions (Levinson, 2006). Railroad tracks and facilities were abandoned, and left to rust. Manufacturing plants, terminals and warehouses were abandoned and subjected to vandalism. They began to crumble. A once proud, active, and dominant port was reduced to rubble and visual blight. The maritime and industrial activities that once physically separated the water from the adjacent communities were no longer adding to the economic viability; their abandoned lands were now contributing to the deterioration of neighborhoods (PANYNJ, 1979). For those waterfront areas that were not abandoned or deteriorated to an unusable extent, new land uses emerged; some, however were not a desirable use of the land and did little to improve the image of the cities.

6.3.1 Manhattan

In the late 1940s and early 1950s, a number of new land uses began to emerge on the East River waterfront. Public housing, high rise apartment buildings, a hospital, a Con Edison power station, and the United Nations headquarters rose on the former sites of stockyards, rail facilities, maritime infrastructure, and the ventures that supported the commercial trade. By 1970, the majority of the East River piers were over 40 years old and one third were either unused or unusable (Buttenwieser, 1987).

By the 1970s, almost half of the 79 piers on the Hudson River waterfront were in disrepair (Buttenwieser, 1987) (see Figure 6.6) New uses on the former

maritime facilities sites included salvage yards, a city-run impound for towed cars, parking lots for city buses, and prison barges (Gastil, 2002; PANYNJ, 1979; Wise, Woods Bone, 2004).

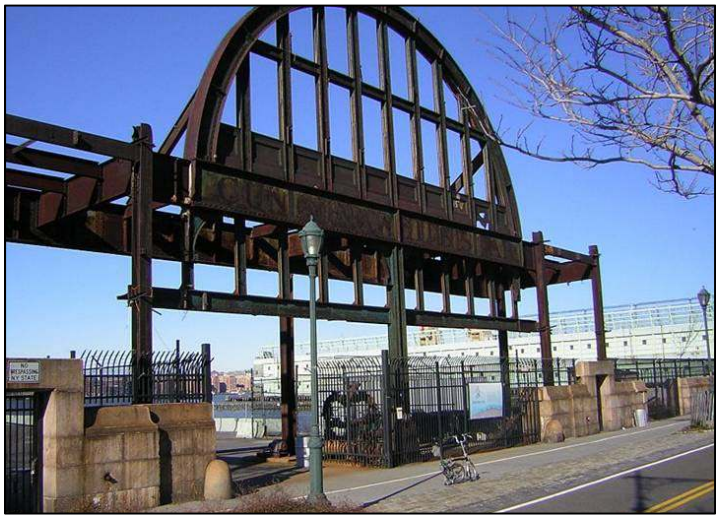


Figure 6.6 Archway of former Cunard Line and White Star Line at North River Pier 57 in Manhattan. 2008. Photograph. Although the steamship lines no longer use Pier 57, a relic of the piers prior maritime use remains.

Source: http: en.wikipedia.org wiki File:Cunardarchpier57.JPG.

6.3.2 Brooklyn

The Brooklyn waterfront suffered a similar fate as Manhattan in that a good amount of maritime and associated industry closed by 1960 and left behind a waterfront of rotting piers and abandoned buildings (Gastil, 2002; Pollara, 2004a). Unlike Manhattan, most of the piers in Brooklyn were privately owned (PANYNJ, 1979). The Brooklyn Navy Yard and the Brooklyn Army Terminal closed in the late 1960s and early 1970s, respectively. Both had a long history not only in shipbuilding and as a military depot and supply base, respectively, but as a major employer in Brooklyn. The City of New York ultimately purchased

both sites and converted them into various industrial activities including furniture manufacturing, warehousing, and biotechnology research (Brooklyn Navy Yard Industrial Park, 2010; Brooklyn Army Terminal-History, 2010).

6.3.3 Hudson County

As the Hudson County waterfront played a significant role in the maritime activities of the Port of New York, it also suffered from the loss of this industry. By the 1960s, the shoreline was filled with abandoned and rusting railroad tracks, yards, and sheds; abandoned, crumbling buildings; and rotting and charred piers (Hampson, 2007; PANYNJ, 1979; Strunsky, 2005) (see Figure 6.7). The blighted waterfront stood as a scar that travelled through the municipalities of West New York, Weehawken, and Jersey City.

Figure 6.7 Rotted pier in the Hudson River, Hoboken. 2011. Personal photograph by author. This pier was once used for the transference of cargo from ships on the Hudson River to the shores of Hoboken, New Jersey.

Bayonne, however, benefitted from US military operations. Due to Bayonne's location at the mouth of Upper New York Bay and the deep waters the Bay offers, the US Navy determined it to be an ideal location for a military ocean terminal. From dredged materials, the US Navy created a peninsula that

extended from the Bayonne waterfront. In 1942, the Military Ocean Terminal at Bayonne opened as a logistics and repair base that included the largest dry dock on the east coast, a huge shipping terminal and warehouses for military supplies (Bayonne Military Ocean Terminal, 2010) (see Figures 6.8 and 6.9). Most importantly for the Bayonne residents and businesses, the terminal was a source of employment and economic viability at a time when neighboring municipalities were suffering the loss of their industrial base (J. Fussa, personal communication, September 3, 2010).

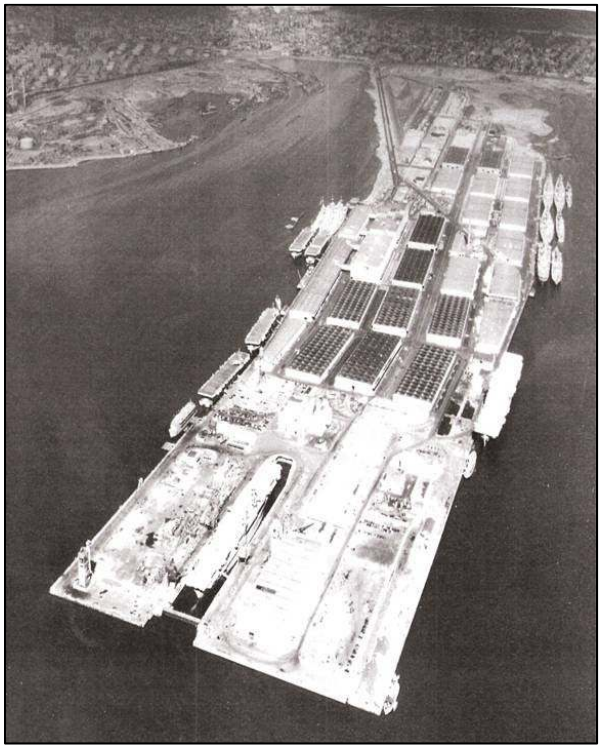


Figure 6.8 US Naval Supply Center, Bayonne. 1975. The peninsula pictured was constructed by the US Navy from dredged material and extended from the Bayonne waterfront into the Upper New York Bay.

Source: Newark Public Library.

Figure 6.9 Bayonne Port Drydock. 1962. This facility, part of the peninsula pictured in Figure 6.8 removed ships from the water for maintenance and repairs.

Source: Newark Public Library.

CHAPTER 7

MOVEMENT TOWARDS REDEVELOPMENT OF THE PORT- ABANDONED WATERFRONT: 1960s - 2010

The 1960s through 1980s was a time of awakening. State and local elected and planning officials and community groups realized that: the maritime and manufacturing industries were no longer the foundation of the region s economy, years of environmental degradation had taken a toll on the waterways and waterfronts, and planning for the future was a necessity. The New York City and Hudson County waterfront, once commandeered by the maritime industry, was now being viewed as a mechanism for urban economic renewal and revitalization of the city image. Elected officials, planners and community groups sought to transform the waterfront from its dirty and dangerous condition to one which invited the public to reconnect with the water.

Figure 7.1 is a timeline of the significant events, activities and conditions affecting the port and the waterfronts from the 1960s to 2010 that are discussed in this chapter. In this figure, the significant events, activities and conditions affecting the port and the waterfronts are grouped under four categories: waterfront activities, challenges, planning and authority and control.

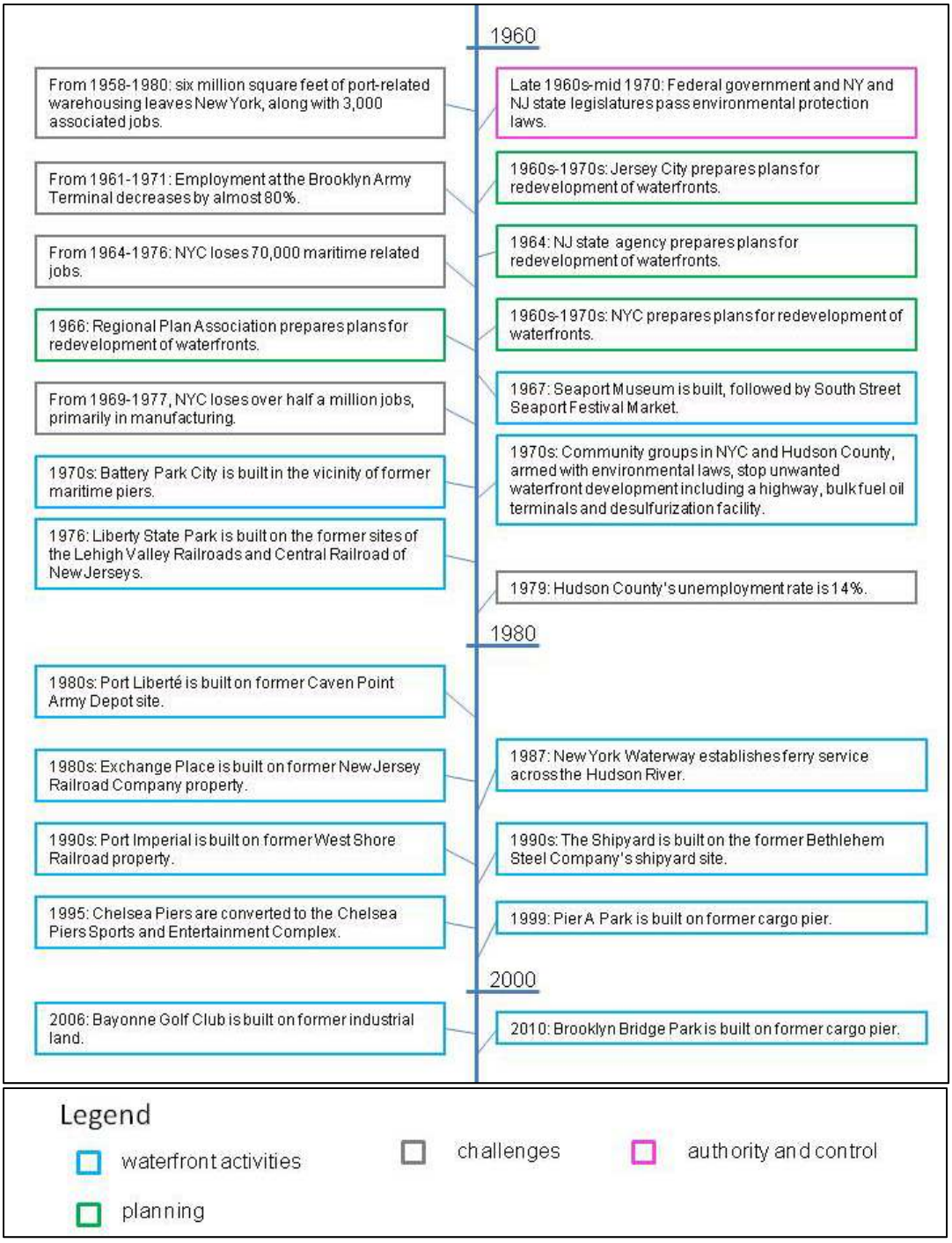


Figure 7.1 Timeline of significant events, activities and conditions affecting the port and waterfronts from the 1960s to 2010.

7.1 The Need for a New Economy

New York City's economic stability and prosperity as well as that of the neighboring Hudson County municipalities had rested squarely upon maritime activities and their associated industries. That foundation, however, began to give way in the 1960s partly because of national trends and partly due to the movement of cargo handling facilities away from their original waterfront locations primarily to the Newark Bay area.

Between 1969 and 1977, New York City lost over half a million jobs, primarily in manufacturing. A large portion of the city's apparel industry moved to the southern US and Asia (Moss, 1979). New York lost 70,000 maritime related jobs between 1964 and 1976 (Levinson, 2006). Between 1958 and 1980, man days worked by New York's longshoremen plummeted from almost four million to under one million (White, 1981). From 1961 to 1971, employment at the Brooklyn Army Terminal decreased by almost 80 percent (Levinson, 2006). The total domestic and foreign freight tonnage handled in Manhattan had fallen from 19 percent in 1958 to three percent in 1971 (Buttenwieser, 1987). Brooklyn's maritime and manufacturing industry took a similar hit resulting from the closure of the Brooklyn Navy Yard in 1966 and the movement of freight handling practices to New Jersey (Levinson, 2006). Bull Steamship Line, a prominent tenant of the Brooklyn waterfront piers left in 1977. Between 1958 and 1980, six million square feet of port-related warehousing left New York, along with 3,000 associated jobs (White, 1981).

The collapse of the rail industry and the exodus of manufacturing "sucked the economy right off the Jersey City waterfront" (R. Cotter, personal communication, October 29, 2010). By the 1970s, 14 percent of that city's population and nine percent of its jobs were gone (Hampson, 2007). Hoboken suffered a similar fate with a 12.5 percent unemployment rate in 1960 (Bierbaum, 1980). In 1979, Hudson County's unemployment rate was 14 percent, significantly above the state and national averages (Singer, 1979).

7.2 Planning for Change

The old adage "the first step towards recovery is recognizing you have a problem" can certainly be applied to the movement towards waterfront redevelopment along the lower Hudson and East Rivers and Upper New York Bay. But professional planners would add to that adage "the second step is planning for that recovery". Jersey City Mayor Gerald McCann (1981-85) has often been credited with sparking the redevelopment of the lower Hudson River New Jersey waterfront by breaking ranks with fellow democrats and endorsing Ronald Regan for President in 1980, which in turn led to a $49 million federal appropriation for infrastructure improvements at the Newport redevelopment area and at the former Harborside freight terminal which was designated for redevelopment as office space (Hampson, 2007; Strunsky, 2005). While that infusion of funds was a significant catalyst, the foundation upon which redevelopment rested was the many planning efforts made years before in Jersey City.

As far back as 1961, Jersey City Mayor Thomas Gangemi recognized that while the collapse of the railroad industry and the exodus of the manufacturing industry were economically disastrous, they did present the city with an opportunity. In hiring staff from the New Jersey State Planning Office, the Mayor sought the redevelopment of the waterfront for a new economy, very different from the city's blue-collar roots. The new Jersey City planning staff devised a plan for Wall Street West, a redevelopment area at Exchange Place (R. Cotter, personal communication, October 29, 2010). Other early waterfront planning efforts included the 1962 New Jersey Department of Conservation and Economic Development's inventory of the Hudson County waterfront usage, the 1964 Jersey City Division of Planning's report entitled "Waterfront Development - A Planning Approach", and a 1971 report from the Jersey City Division of Planning entitled "Comprehensive Waterfront Plan, A Technical Report" (PANYNJ, 1979).

In New York City, similar planning studies began in the 1960s. The New York Planning Commission issued a report in 1965 entitled "The Manhattan Waterfront: Prospects and Problems" (PANYNJ, 1979). A year later the same Commission released the "Lower Manhattan Plan", a plan for the Hudson River waterfront from the Battery to West 72nd Street - the area formerly dominated by the maritime industry. The Plan called for: expansion of the southwestern waterfront (via placing fill in part of the Hudson River); parks and plazas; a convention center that would span from West 38th to West 43rd Streets; and a heliport in the NY Stock Exchange area (Harsley, 1979; Wise, Woods & Bone, 2004). A 1966 study published by the Regional Plan Association entitled "The

Lower Hudson", recommended goals, redevelopment plans, and design guidelines for waterfront planning on both sides of the Hudson River (Moss, 1979; PANYNJ, 1979). The 1971 New York City Planning Commission's master plan entitled "Plan for New York City: The Waterfront" recognized the waterfront as a development opportunity (Moss, 1979).

7.3 New Environmental Awareness and the Public Trust Doctrine

7.3.1 Environmental Regulations

A national awakening to the environmental ills perpetrated by industrial America began in the late 1960s and escalated in the following decade. The flaming pollution of the Ohio's Cuyahoga River in Ohio, a 40-mile oil slick on the Santa Barbara California beaches, severe smog plaguing many US cities including New York, raw sewage washing ashore, and rivers changing color depending on the daily dumping practices of mills caught the attention of environmental advocacy groups and average Americans who pressured the US Congress to react with a series of environmental laws and regulations. The National Environmental Policy Act of 1969, the Clear Air Act of 1970, the Coastal Zone Management Act of 1972, the Ocean Dumping Act of 1972, the Federal Water Pollution Control Act Amendments of 1972, and the Toxic Substance Control Act of 1976, to name a few, were part of an environmental regulatory framework that provided the newly created US Environmental Protection Agency and other federal and state agencies with a platform for cleaning up and protecting America's land, water and air (Smith, 1970). Following the enactment of federal environmental

regulations, the states of New York and New Jersey promulgated laws and regulations reflective of these federal mandates.

The Hudson River and adjoining waterways had not escaped industrial dumping practices. For 30 years, beginning in 1947, General Electric discharged 1.3 million pounds of PCBs (a carcinogen) into the Hudson River. Once PCBs were banned in the US in 1977 and a cleanup program was enacted, the toxicity of the Hudson River declined (Riverkeeper, 2010).

7.3.2 Environmental Awareness Stops Undesired Waterfront Development

Environmental regulations promulgated in the 1970s not only required the cleanup of the polluted environment, they sought to prevent future degradation. Armed with these new regulations, community groups were able to prevent several undesired land uses along the abandoned waterfronts.

In New York City, a 1974 proposal for Westway was met with opposition. The project involved dismantling the existing West Side Highway, placing the roadway in a cut, then filling and developing the waterfront site with residential, commercial, and recreational uses. Westway would be accomplished by placing almost 200 acres of fill into the Hudson River extending the water's edge. A coalition of West Side residents, environmental advocacy groups, and community boards argued that the placement of fill would adversely impact the Hudson River's aquatic life, primarily the spawning practices of striped bass. While placing fill into the rivers with the intent to extend New York City's land area was a common historical practice, armed with new environmental regulations, (specifically the National Environmental Policy Act, the Clean Water Act, and the

Rivers and Harbors Appropriations Act), Westway was defeated over a decade later (Hampson, 2007; Platt, 2009).

Community groups on the New Jersey side of the Hudson River were also actively involved in preventing waterfront development projects viewed as detrimental to the environment. The Hudson Environmental Commission and its successor, the Waterfront Coalition of Hudson and Bergen County, were instrumental in rejecting the placement of several bulk fuel oil terminals and a desulfurization facility and storage terminal on the Hudson River waterfronts in Jersey City, Bayonne, Hoboken and Weehawken between 1972 and 1976 (Singer, 1979).

Since the 1980s, many waterfront-centric advocacy groups have formed including the Working Waterfront Association, Metropolitan Waterfront Alliance, Waterfront Park Coalition, and the Fund for a Better Waterfront (Pollara, 2004a). These groups focus on issues including environmental conservation, environmental stewardship, public use of the waterfront, and public access to the water. The environmental regulations passed in the late 1960s and early 1970s provide the public and community groups with a mechanism to be informed of proposed waterfront projects and to prevent or alter such plans in the best interest of the environment and public.

7.3.3 The Public's Right to Access Waterways: The Public Trust Doctrine

A significant issue regarding the redevelopment of waterfronts is the public's right to access waterways. The public's right to access waterways is embedded in the common law rule of the Public Trust Doctrine. Beginning around 500 AD as part

of Roman civil law, maintained in English Common Law, and adopted in the laws of the 13 original colonies, the tenets of the public trust remain today (Freudenberg, nd).

On the Federal level, the Public Trust Doctrine is enacted through the Coastal Zone Management Act of 1972, the overarching federal regulation that requires the development of statewide coastal management programs intended to protect the coastline. Public access to the country's coastlines is a major foundational principle of that law (New York City, Department of City Planning, 2002).

In New York State, the Public Trust Doctrine is codified in the Waterfront Revitalization and Coastal Resource Act of 1981. The state program contains 44 coastal policies and provides for local implementation when a municipality adopts a local waterfront revitalization program (LWRP). The New York City Department of Planning is responsible for the LWRP. One of the policies contained in the New York City LWRP is a provision for public access to and along New York City's coastal waters (New York City Department of City Planning, 2002).

In New Jersey, the Public Trust Doctrine, which provides the public's right to tidal waterways and shores, is codified in the Coastal Zone Management (CZM) Regulations and enforced by the New Jersey Department of Environmental Protection (NJDEP). These regulations provide guiding principles by which the State sets standards for public access in the coastal zone. This includes the requirement of perpendicular (i.e., piers) and linear (i.e., walkways) access to tidal waterways and their shores (Freudenberg, nd).

New York City and the Hudson County municipalities used these public access regulations and the environmental regulations discussed in Section 7.3.1 as tools to transform the port-abandoned waterfronts, giving them new uses and a new image.

7.4 A New Waterfront: 2010

For approximately a century, maritime and associated industrial facilities separated the public from the lower Hudson and East Rivers and Upper New York Bay. While during part of that time the port was dedicated to the transfer of goods and people and thus establishing and increasing the Port of New York's dominance in the world of commerce, the remainder of that century saw these waterfront facilities rotting, leaving a waterfront in ruins. The waterfront stood as a relic to the industrial past with crumbling terminals and warehouses, rusted rail cars and tracks, charred and decaying piers, and squatter shacks. As the commercial maritime and industrial activities spread across the waterfronts, the public's use of the waterfront and waters diminished. But after the commercial maritime and industrial activities abandoned the waterfront, the public slowly reconnected with the waterfront and water with residential, commercial and recreational uses, as well as with reinstitution of passenger ferry services.

Except for a few early developments including Liberty State Park (1976), it was not until the late 1980s that waterfront redevelopment plans were implemented with brick and mortar. That redevelopment has continued into the 2000s. Figures 7.2 and 7.3 illustrate the general location of waterfront land uses in New York City and Hudson County along the lower Hudson and East Rivers

and Upper New York Bay in 2010, as well as passenger ferry routes. The transformation of the waterfront cannot be attributed to any one plan, any one municipal agency, or any one developer. It is a culmination of the efforts of private industries, governmental agencies, developers, and community activists (Drexel, 2009).

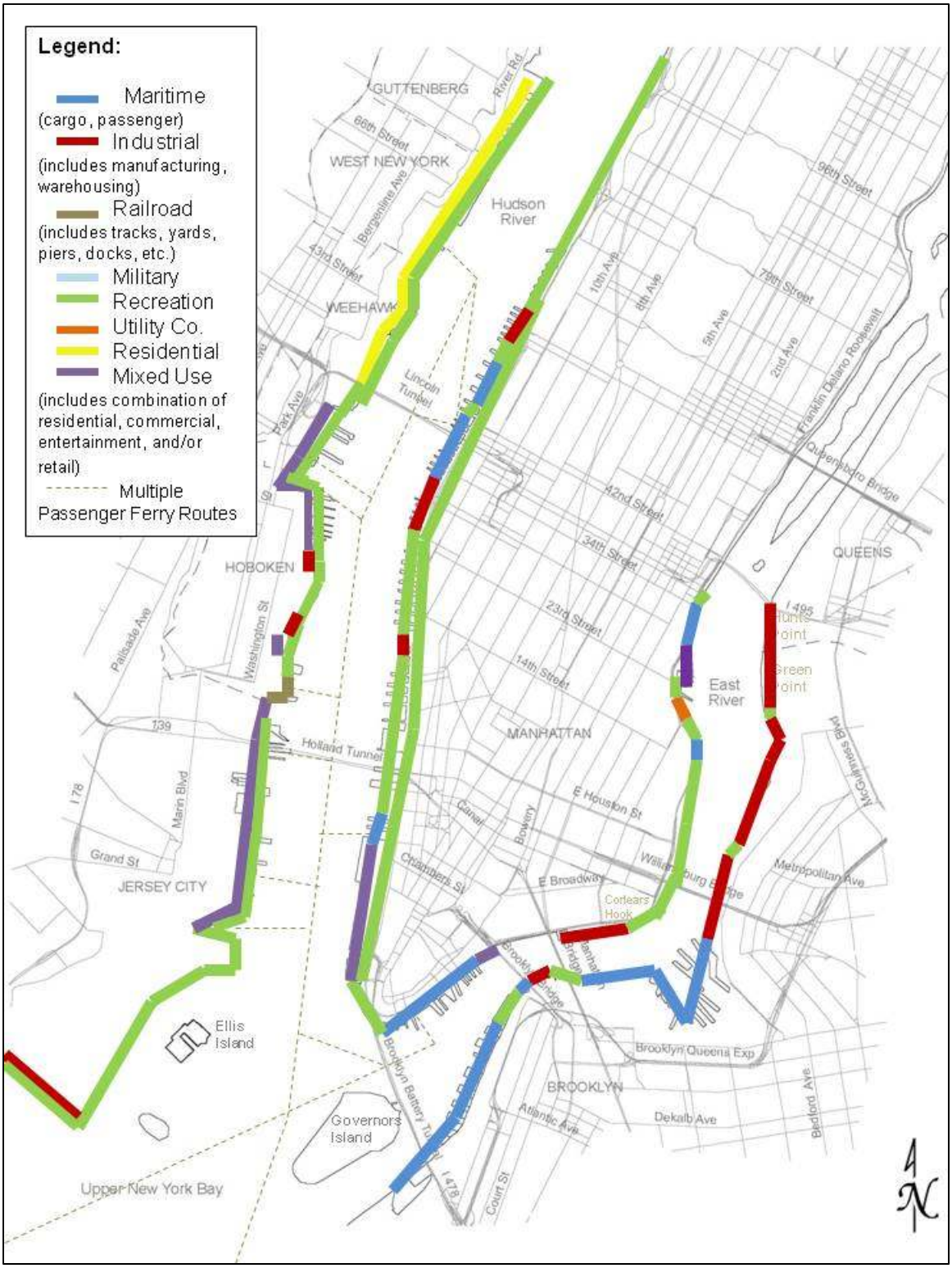


Figure 7.2 General locations of waterfront land uses, 2010, Upper New York Bay, Hudson River and East River, New York and New Jersey.

Sources: Google Maps; New York City, Department of City Planning.

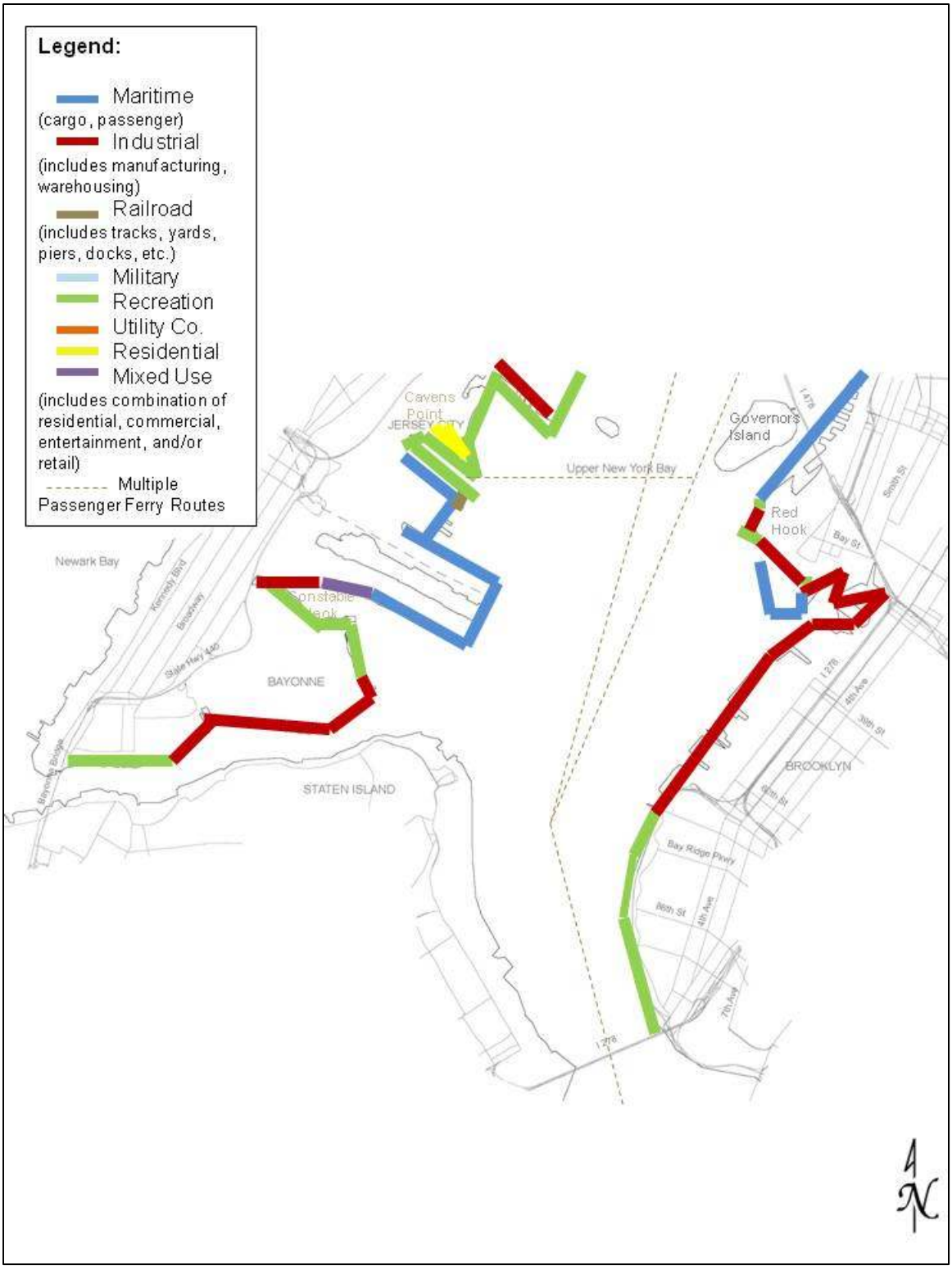


Figure 7.3 General locations of waterfront land uses, 2010, Upper New York Bay, New York and New Jersey.

Sources: Google Maps; New York City, Department of City Planning.

In 2010, the port-abandoned waterfront reflects not the industrial economy of the past but the current service economy characterized by consumption rather than production, and a new image. While maritime activities still occur in the form of ferry transportation, cruise ship docking and terminal facilities, and the Port of New York and New Jersey freight handling operations, this economic resurgence has altered the once industrial waterfront to one of high density residential, commercial, retail and recreational uses and has reconnected the public with the water in many locations along the lower Hudson and East Rivers and Upper New York Bay. The redevelopment of these properties has created new destinations. The allure of the water is a major factor which draws people to these sites. Figures 7.4 and 7.5 show a few of these redevelopments: their locations and the decade in which their construction began. Highlighted below is a summary of some of the redevelopments that have emerged on the industrial foundations of the past.

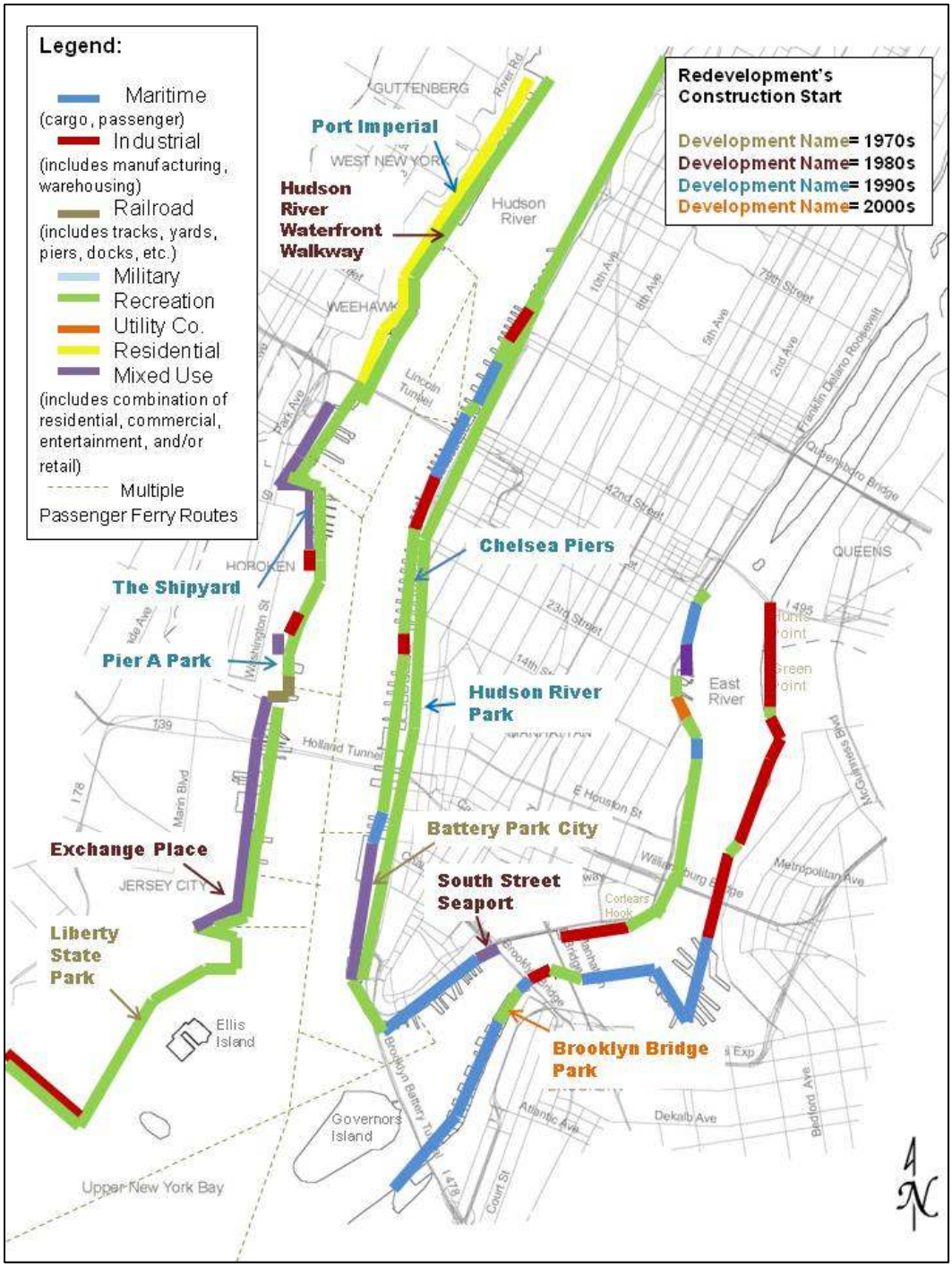


Figure 7.4 General locations of waterfront redevelopments, 2010, Upper New York Bay, Hudson River and East River, New York and New Jersey.

Sources: Google Maps, 2010; New York City, Department of City Planning.

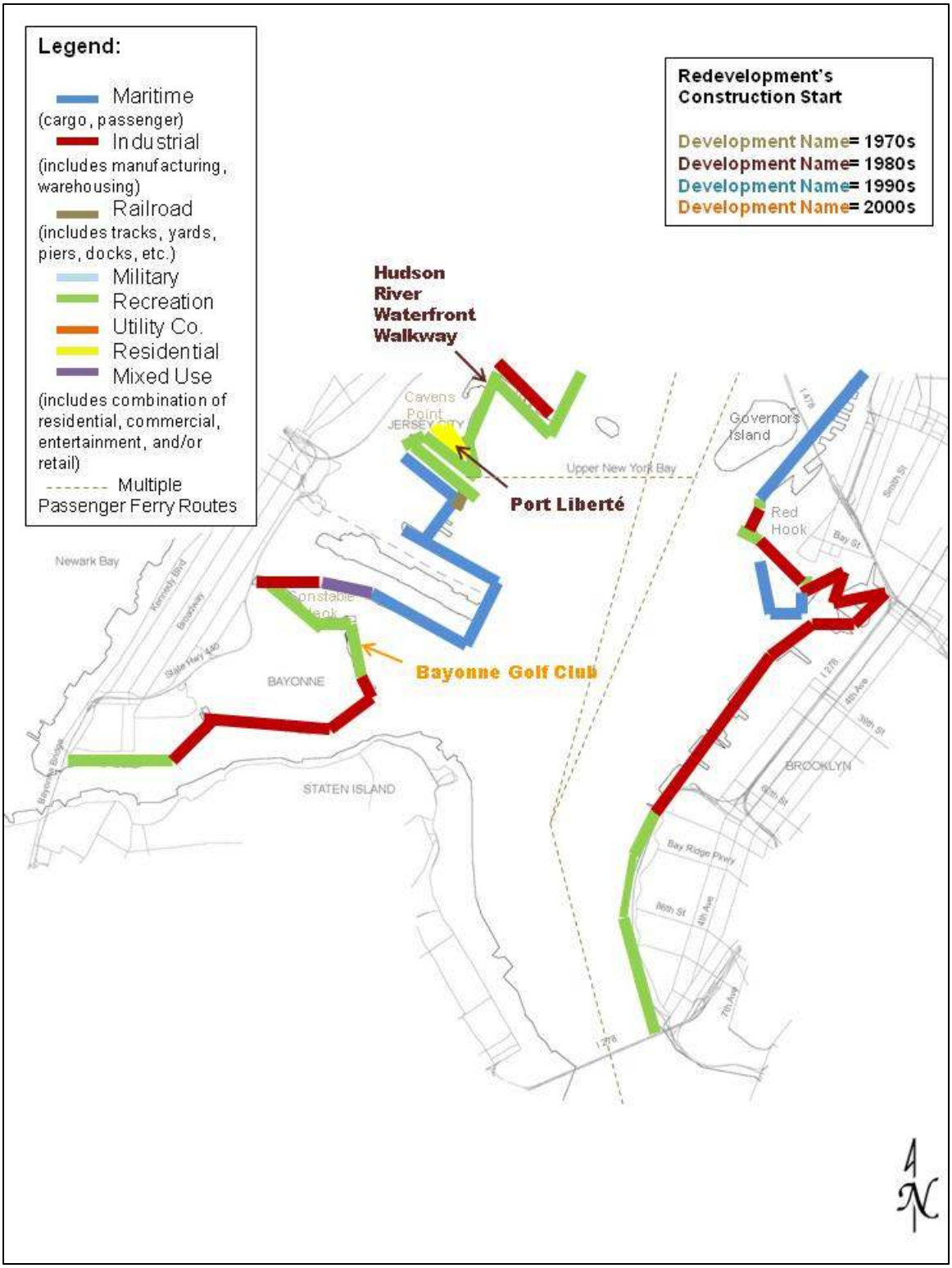


Figure 7.5 General locations of waterfront redevelopments, 2010, Upper New York Bay, New York and New Jersey.

Sources: Google Maps, 2010; New York City, Department of City Planning.

7.4.1 Residential Use

Port Libert was erected on the site of the former Caven Point Army Depot, a US Army installation in existence from the early 1900s to the 1970s when it was decommissioned. With portions completed in the 1980s, construction continues on additional sections. It is a gated community on the Upper New York Bay waterfront in Jersey City. Designed as a European style community surrounded by man-made canals, the development features walkways, tennis courts, a pool, clubhouse, private boat slips, and views of New York (New Jersey Gold Coast Real Estate, 2010).

Port Imperial, a master planned residential community on the Hudson River waterfront in West New York and Weehawken was the vision of Arthur Imperatore. Formerly the home of the West Shore Railroad, upon purchase the site contained a network of rusted rails, abandoned railcars and barges, and hundreds of old automobiles. The first portion constructed was a terminal for New York Waterway s Port Imperial; New York Waterway established ferry service across the Hudson River in 1987. A variety of residential developments have been constructed since the late 1980s (Levin, 2008). The site also includes a portion of the Hudson River Waterfront Walkway. Figure 7.6 provides views of the former and current use of the Port Imperial site.

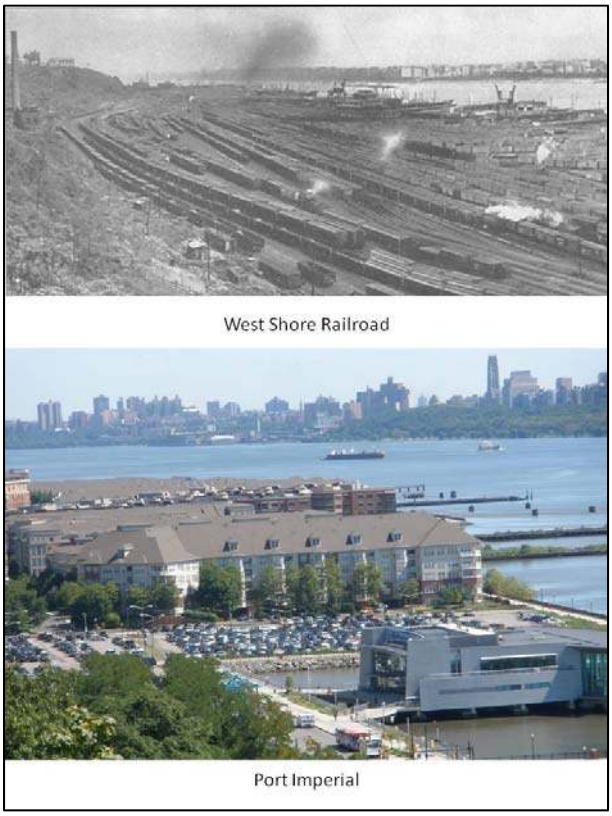


Figure 7.6 Photographs of the former and current uses of the Port Imperial site, West New York and Weehawken, New Jersey. The top photo shows the trains, tracks and rail yards of the West Shore Railroad. In approximately the same location, the bottom photo shows new roadways, housing and parking on the Hudson River waterfront. The large, gray structure in the bottom photo is the New York Waterway ferry terminal.

Sources: West New York Public Library (West Shore Railroad); Personal photograph by author, 2011 (Port Imperial).

7.4.2 Mixed Use

The South Street Seaport was one of the earliest maritime establishments (early 1800s) in the Port of New York, situated on the East River waterfront. However, by the 1960s its buildings were abandoned and designated for demolition to make way for an urban renewal project. With a desire to preserve not only the 11 blocks of historic buildings but the maritime history associated with the area, a

community group created the Seaport Museum in 1967. With funding from the City of New York, private donations and the Rouse Company, the historic area was transformed into a maritime festival market place which originally included the South Street Seaport Museum, Fulton Fish Market, and other retail facilities (Seaport Museum New York, 2010). Figure 7.7 provides views of the former and current uses of the South Street Seaport.

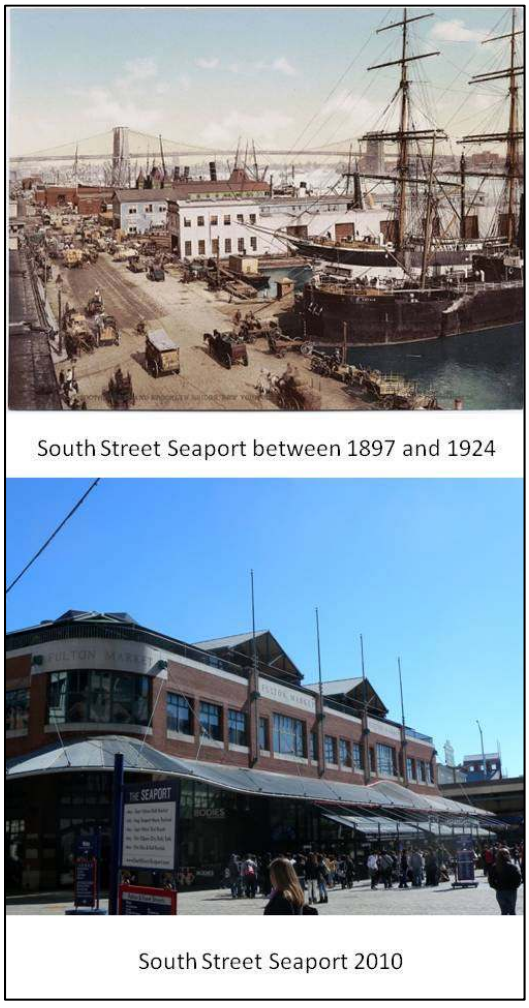


Figure 7.7 Photographs of the former and current uses of the South Street Seaport, New York. The top photo shows the Brooklyn Bridge in the background and commercial maritime activities in the foreground. The bottom photo shows the same location redeveloped as a festival marketplace.

Sources: http://en.wikipedia.org/wiki/File:Detroit_Photographic_Company_(0616).jpg (between 1897 and 1924); http://en.wikipedia.org/wiki/File:Fulton_Market_sun_jeh.jpg (2010).

Battery Park City, located in lower Manhattan was constructed on fill from the World Trade Center excavation that was deposited into the Hudson River. Its construction site included city owned piers that had a rich maritime history dating as far back the turn of the nineteenth century. It is now a 92-acre planned mixed-use development that includes middle and upper income apartment buildings, office buildings, the World Financial Center, a high school, retail establishments, entertainment options, marina, ferry terminal, and an over one mile riverfront walkway (Gastil, 2002; Wise, Woods Bone, 2004). Figure 7.8 provides views of the former and current uses of the Battery Park City site.

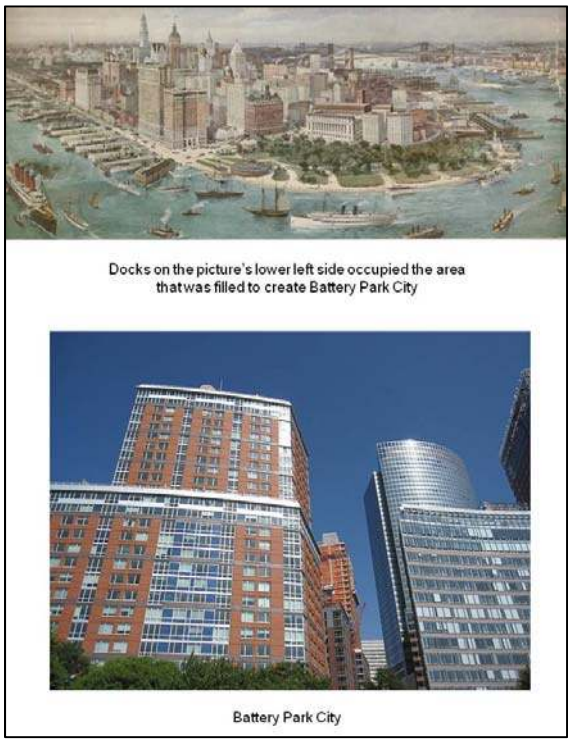


Figure 7.8 Photographs of the former and current uses of the Battery Park City site, New York. The left side of the top photo of lower Manhattan shows piers jutting out into the Hudson River. Those piers were demolished and that portion of the Hudson River was filled to construct Battery Park city pictured below.

Sources: New York City Public Library; Gryffindor, http:commons.wikimedia.orgwikiFile:BatteryParkCityIMG8976.JPG.

Exchange Place, located on Jersey City's Hudson River waterfront, is a predominantly commercial district. Built on a large waterfront area formerly occupied by the New Jersey Railroad Company's tracks, yards and docks, this complex has been hailed by the media and Jersey City officials as the catalyst project for the rebirth of the Jersey City waterfront and its transformation into the "Gold Coast". Office towers including the Goldman Sachs Building, the Harborside Financial Center, the Hyatt Regency Hotel, and residential buildings have transformed the Jersey City skyline (Jersey City Past and Present, 2010). The area also includes the Exchange Place stop on the Port Authority TransHudson rail system, the Hudson Bergen Light Rail's Exchange Place station, a ferry terminal, and a portion of the Hudson River Waterfront Walkway. Figure 7.9 provides views of the former and current uses of the Exchange Place site.

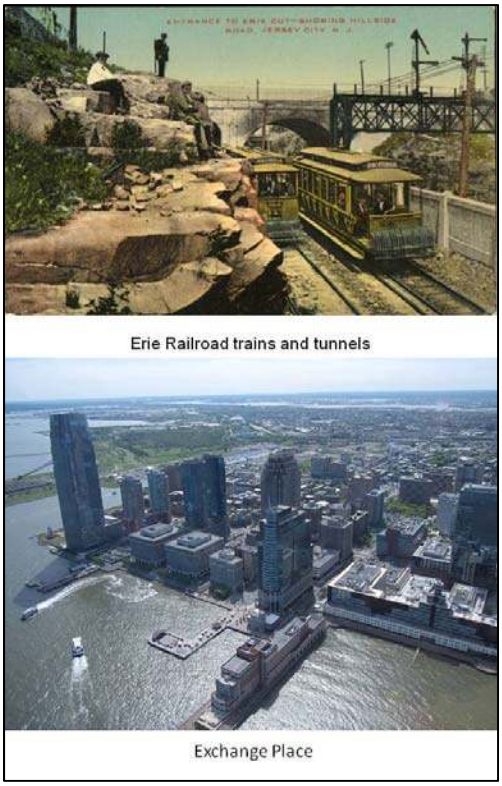


Figure 7.9 Photographs of the former and current uses of the Exchange Place site, Jersey City. The top photo shows the trains and tunnels of the Erie Railroad which operated along the Hudson River in Jersey City. In about the same location, the bottom photo shows the redeveloped waterfront named Exchange Place.

Sources: Jersey City Free Public Library (Erie Railroad);
http: en.wikipedia.org wiki File:Jersey City.JPG (Exchange Place).

The Shipyard is a mixed-use community on the Hudson River shoreline in Hoboken. The 20-acre site was the former home to the Bethlehem Steel Company s shipyard. The Shipyard development includes residential and retail uses, a park, a marina, the Hoboken Museum, and a portion of the Hudson River Waterfront Walkway (The Independence at the Shipyard, 2003). Figure 7.10 provides views of the former and current uses of the Shipyard site.

Pennsylvania R.R. Marine Dept. piers & shops, Hoboken, Nov. 30, 1961

The Shipyard

Figure 7.10 Photographs of the former and current uses of The Shipyard site, Hoboken. The top photo shows the commercial maritime and railroad activities on the Hudson River waterfront in Hoboken. The bottom photo shows the residential redevelopment constructed at the same location.

Sources: Hoboken Historical Museum (Pennsylvania Railroad); Personal photograph by author, 2011 (The Shipyard).

7.4.3 Recreational Use

Liberty State Park was constructed on the former sites of the Lehigh Valley Railroad's and Central Railroad of New Jersey's tracks, yards and docks. On the Upper New York Bay shoreline in Jersey City, this over 1,000 acre park was opened in 1976 after an extensive cleanup of abandoned buildings, rail infrastructure, vegetation and debris. Now the state's largest urban park, Liberty

State Park contains recreational facilities, a marina, boat launches, ferry docks, the Liberty Science Center, a portion of the Hudson River Waterfront Walkway, the Hudson Bergen Light Rail's Liberty State Park station, and the CRRNJ Terminal which is listed on the National Register of Historic Places (Liberty State Park: CRRN, 2009). Figure 7.11 provides views of the former and current uses of the Liberty State Park site.

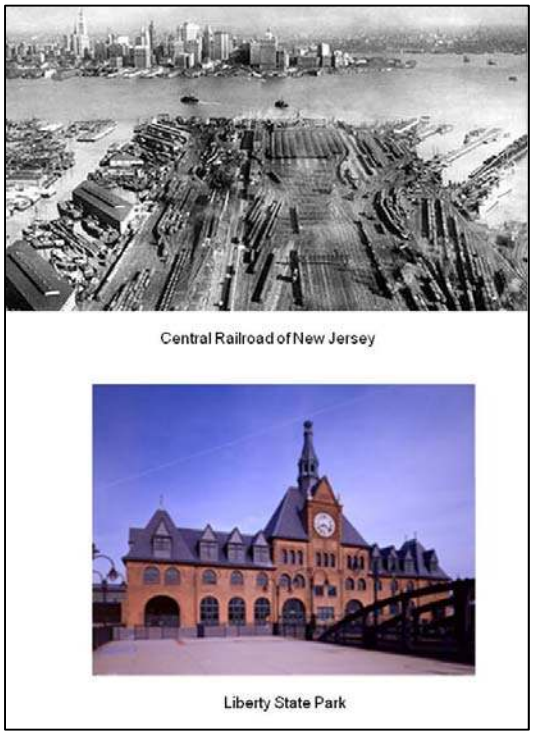


Figure 7.11 Photographs of the former and current uses of the Liberty State Park site, Jersey City. The top photo shows the Central Railroad of New Jersey rail yards with the Hudson River and Manhattan in the background. After the rail yards were demolished, Liberty State Park was constructed in its place. The bottom photo shows the former railroad terminal which was restored and is now part of the park, used for gatherings and events.

Sources: New Jersey Department of Environmental Protection.

Chelsea Piers Sports and Entertainment Complex, located on the Hudson River in lower Manhattan, is located on four piers originally built in 1910 for the

berthing of luxury liners. During World Wars I and II, the piers served as points of embarkation for US military troops and then as cargo terminals until 1967. After that, the piers were used as warehouses, parking, a sanitation department repair shop and a car impound lot. In 1995, Chelsea Piers were converted to the Chelsea Piers Sports and Entertainment Complex which contains a golf club, health club, field house, a spa and bowling facility (Chelsea Piers History 101, 2011). Figure 7.12 provides views of the former and current use of the Chelsea Piers Sports and Entertainment Complex site.

Figure 7.12 Photographs of the former and current uses of the Chelsea Piers site, New York. The top photo shows the Chelsea Piers used for maritime purposes with a docked ship. The bottom photo shows the piers almost 100 years later which are now used for recreational and entertainment activities.

Sources: http://en.wikipedia.org/wiki/File:Chelsea-lusitania.png (1910);
Marcel Ren Kalt, http://en.wikipedia.org/wiki/File:Chelsea_Piers.jpg (2006).

Pier A Park is located on the Hudson River waterfront in Hoboken. Pier A, constructed in 1903, was formerly used for maritime purposes, and as a point of embarkation during the World Wars. While its maritime use ended in the 1970s, its new use as a municipal park was not finalized until 1999 (Richardson, et. al, 2000). The park contains a portion of the Hudson River Waterfront Walkway. Figure 7.13 provides views of the former and current uses of Pier A.

Port Authority Piers A, B & C, Hoboken, between 1956 and 1959

Pier A Park

Figure 7.13 Photographs of the former and current uses of Pier A, Hoboken. The pier shown at the bottom of the top photo was used for the transference of cargo from ships to shore, and then demolished and converted into a public park shown in the bottom photo.

Sources: Hoboken Historical Museum (Port Authority Piers);
Ali Mansuri, http: en.wikipedia.org wiki File:Frank Sinatra Park. Hoboken, NJ.jpg (Pier A Park).

Bayonne Golf Club, located on the Upper New York Bay waterfront in Bayonne, was constructed in 2006. The Golf Club is located in a portion of

Bayonne that has a long industrial and maritime past. The site itself was created from a deposit of seven million cubic yards of dredge spoils resulting from the deepening of the waterways for larger cargo vessels (Goodwin, 2005). Figure 7.14 provides views of the former and current uses of the Bayonne Golf Club site.

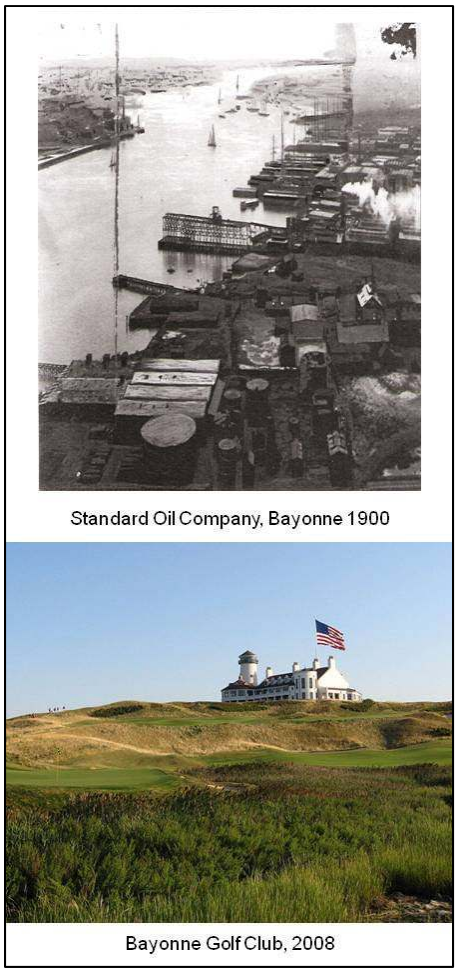


Figure 7.14 Photographs of the former and current uses of the Bayonne Golf Club site, Bayonne. The top photo shows oil tanks and industrial facilities on the Bayonne waterfront. The bottom photo shows the site converted into a golf course.

Sources: Newark Public Library (Standard Oil Company);
http:□en.wikipedia.org□wiki□File:Bayonne□Golf□Club□jeh.JPG (Bayonne Golf Club).

The Brooklyn Bridge Park is an 85-acre recreational facility extending over one mile on Brooklyn's East River waterfront. The park site was formerly owned by the Port Authority of New York and New Jersey and used for the transfer of cargo. Construction of the park began in 1998, with Piers 1 and 6 opening to the public in 2010. Planning and construction of the remaining site is underway (Brooklyn Bridge Park, 2010). Figure 7.15 provides views of the former and current uses of the Brooklyn Bridge Park site.

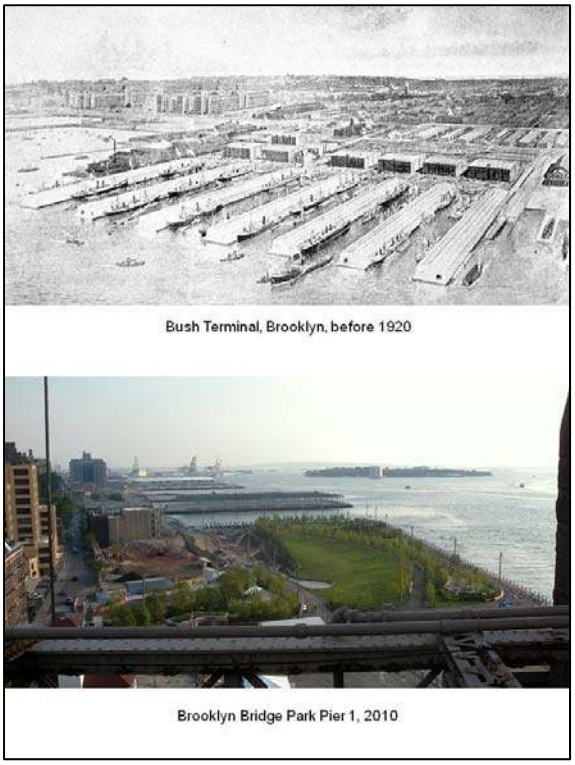


Figure 7.15 Photographs of the former and current uses of the Brooklyn Bridge Park site, Brooklyn. One of the piers shown in the top picture was demolished and converted into a public park.

Sources: http://en.wikipedia.org/wiki/File:Bush_Terminal_Brooklyn_historic.jpg (Bush Terminal); http://en.wikipedia.org/wiki/File:Bkln_Bridge_Park_day_finished_jeh.jpg (Brooklyn Bridge Park).

The Hudson River Waterfront Walkway is a partially constructed 18-mile public access pedestrian route along the Hudson River waterfront from the

George Washington Bridge in Fort Lee, Bergen County to the Bayonne Bridge in Bayonne, Hudson County. Approximately 14 miles of this 30-foot wide walkway have been completed. Traveling through nine municipalities, this walkway hugs the shoreline that was once dedicated to maritime, railroad and industrial activities (Hudson County Division of Planning, 2004). Figure 7.16 provides views of a former Hudson River waterfront industrial property in Hudson County and a portion of the Hudson River Waterfront Walkway.

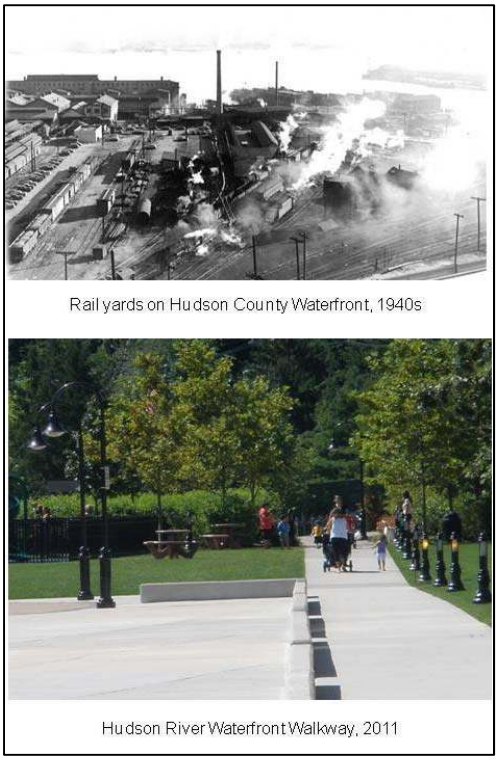


Figure 7.16 Photographs of a former Hudson River waterfront industrial property in Hudson County and a portion of the Hudson River Waterfront Walkway, Hoboken. The top photo shows railroad yards and the Hudson River in the background. At about the same location, a public waterfront walkway was constructed.

Sources: Weehawken Public Library (Rail yards); Personal photograph by author, 2011 (Hudson River Waterfront Walkway).

7.5 Evolution of Waterfront Land Uses from the 1800s to 2010

Land uses on the lower East and Hudson Rivers and Upper New York Bay waterfronts have changed dramatically from the 1800s to 2010. This evolution is primarily due to: the establishment of port activities beginning on the southern tip of Manhattan, the tremendous growth of the port during the Industrial Revolution, the port's abandonment of the waterfronts, the need for urban economic renewal, the desire for a revitalized city image, environmental and public access regulations, and the fortitude of elected officials, planners and community groups. Over a two hundred year period, this waterfront area has evolved from a trading community to a port town to a maritime metropolis to a relic of the industrial and maritime past to vibrant residential and mixed use communities and recreational areas. Figure 7.17 (a compilation of Figures 5.4, 5.6, 5.8 and 7.2) and Figure 7.18 (a compilation of Figure 5.10, 5.13 and 7.3) provide a side by side comparison of the waterfront land use changes from the 1800s to 2010.

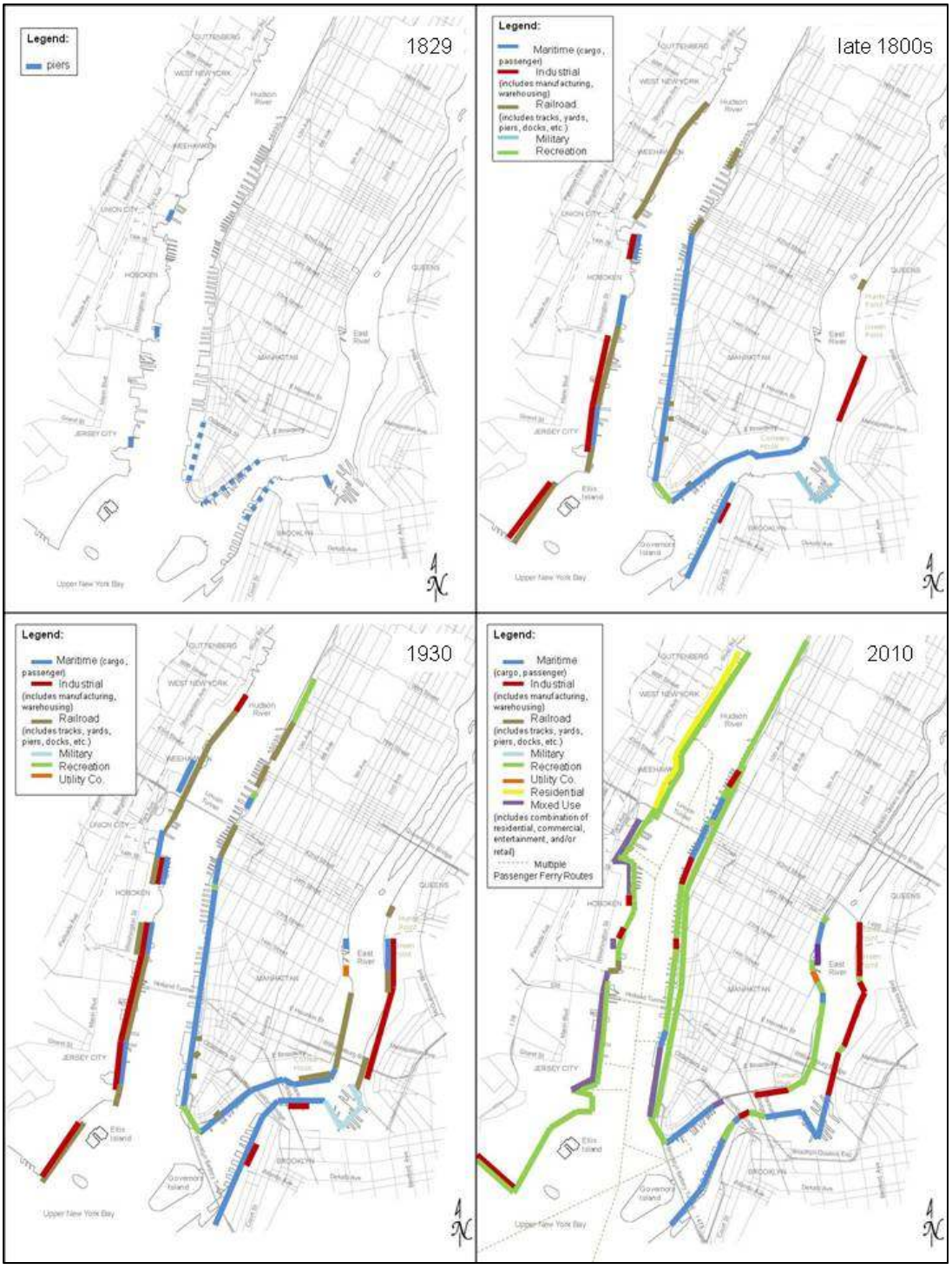


Figure 7.17 Waterfront land use changes on the lower East and Hudson Rivers and Upper New York Bay from the 1800s to 2010.

Sources: D.H. Burr, 1829; Bien Vermeule, 1891; Watson, 1891; Drips, 1867; Pidgeon Robinson,1886; Hopkins, 1908, 1928, 1933; J.B. Beers, 1887; Belcher Hyde, 1929; Bromley, 1930; Google Maps, 2010; New York City, Department of City Planning.

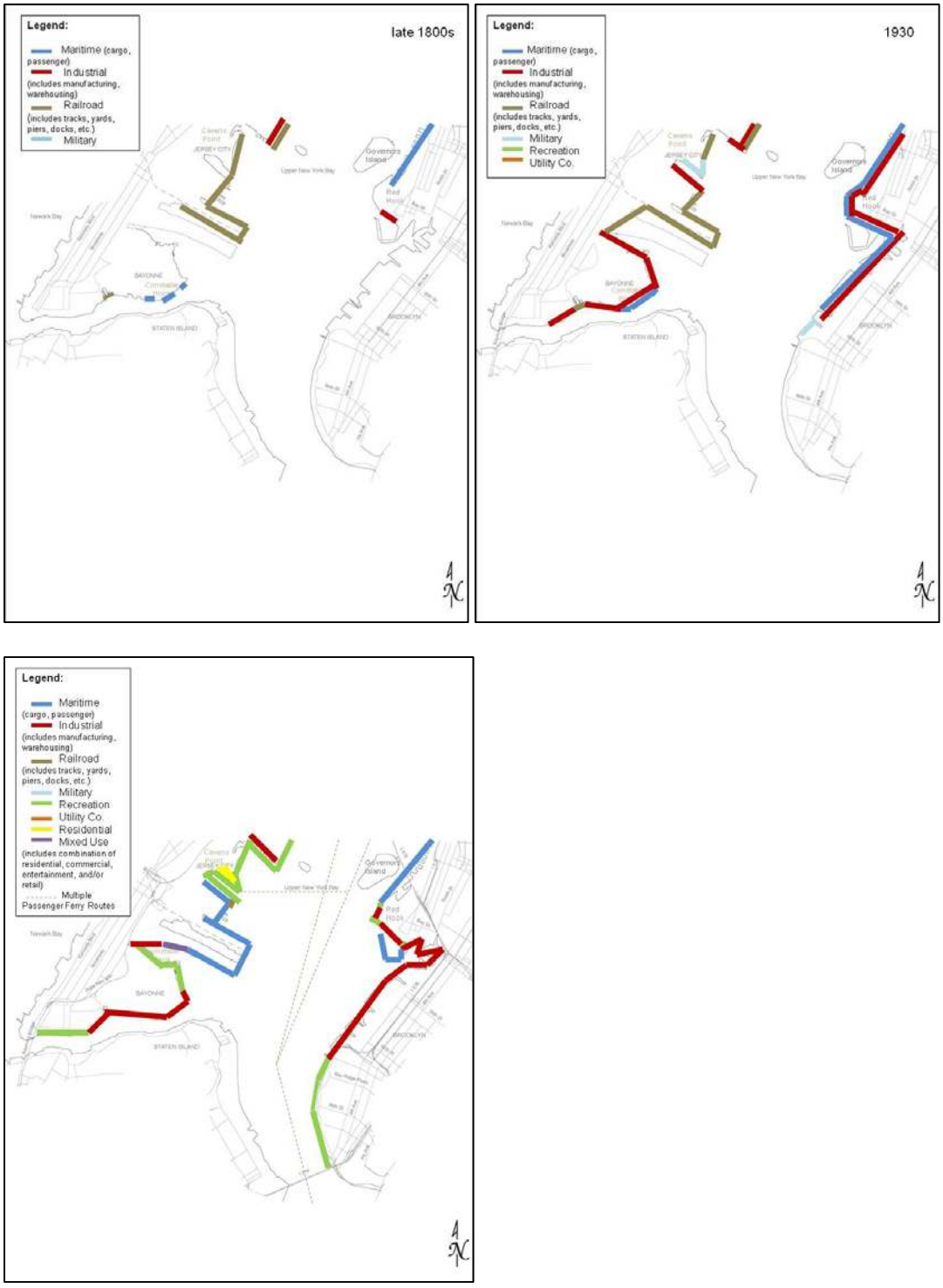


Figure 7.18 Waterfront land use changes on the Upper New York Bay from the 1800s to 2010.

Sources: Bien □ Vermeule, 1891; Watson, 1891; Drips, 1867; Pidgeon □ Robinson, 1886; Hopkins, 1908, 1928, 1933; Belcher Hyde, 1929; Bromley, 1930; Google Maps, 2010; New York City, Department of City Planning.

CHAPTER 8

THE PORT OF NEW YORK AND NEW JERSEY: A GATEWAY FOR WORLD COMMERCE IN 2010

The Port of New York and New Jersey is the largest seaport on the United States east coast and the third largest port in the country after the ports of Los Angeles and Long Beach in California (PANYNJ, 2010, April).

8.1 Node on a Global Supply Chain

The early trade activities in the Port of New York were generally based on two types of arrangements: trade routes established between New York and another country, such as England; or colonization whereby US companies extracted raw materials from the colonized lands (such as sugar from Puerto Rico) and brought them back through the US ports. Those trade practices changed with the advent of the global economy. Beginning around the mid to late 1900s, national economies became integrated into an international or global economy through new means of trade, foreign direct investments and the international flow of capital. Manufacturing moved from industrialized countries (such as the US) to low-wage third world countries. The ownership and control of major corporations are now through foreign direct investments, mergers, acquisitions and joint ventures (Sassen, 1991).

With this global economy came the global supply chain. Created by international corporations, the global supply chain is a system composed of retailers, distributors, transporters and suppliers engaged in the production, handling and distribution of goods. An entire product is rarely manufactured in

one location and then shipped to the market in another location. In this global economy, a component piece, such as a computer chip, may be designed in one country, produced in another country, inserted into a product in a third country, and then shipped to market places in many countries. "The global transportation network has become the circulatory system of the international economy" (Center for Urban Pedagogy, 2011). Ports are no longer the terminus; rather they are nodes on this global supply chain strategically located on a transportation route. Ports that are gateways to continental distribution via a vast network of rail and road are more attractive to the international market. Ports operating in this time of globalization must continuously adapt to changing technologies and trends in order to remain competitive. A port's ability to compete in the global economy depends not only on its onsite operations but also on its landside capabilities. Port customers seek ports that minimize handling and transport times, thereby minimizing delays and costs.

The Port of New York and New Jersey exists at an interesting juncture. While its business is firmly situated at the global scale, its physical components are located at a local scale and are subject to the laws, regulations and influences of the states and municipalities in which its facilities are located. Thus, in order for the Port of New York and New Jersey to attract businesses and maintain a competitive edge, improvements to the local conditions (waterways, transportation, facilities) must continually be made.

8.2 Major Commercial Maritime Terminals

The Port Authority of New York and New Jersey is responsible for planning, administering, constructing, operating, and maintaining the port's terminals and underlying infrastructure. The Port Authority either owns or leases all the port properties. The Port Authority also maintains and operates public berths where shipping companies can have their cargo loaded and unloaded. Private companies operate most of the terminal space, and unions (including the International Longshoremen's Association, AFL-CIO) provide laborers.

The Port Authority of New York and New Jersey's efforts that began in the mid-1940s to unify the port and freight handling operations continued into the 2000s. In 2010 the major commercial maritime terminals of the Port of New York and New Jersey are as follows (PANYNJ, 2010, April) (see Figure 8.1):

- **Port Newark-Elizabeth Marine Terminal:** The Port Authority of New York and New Jersey operates Port Newark and Elizabeth-Port Authority Marine Terminal as one integrated marine terminal. Port Newark-Elizabeth-Port Authority Marine Terminal encompasses 2,230 acres on the Newark Bay waterfront within the cities of Newark and Elizabeth, New Jersey. It includes three containership terminals (APM Terminal, Maher Terminal, and Port Newark Container Terminal) and three vehicles processors (FAPS, Inc., Toyota Motor Logistics Center, Inc., and WWL Vehicles Services Americas, Inc.). The primary cargo type handled at this facility is containers. Additionally, this facility contains over one million square feet of warehouse space (see Figure 8.2)

- **Port Jersey-Port Authority Marine Terminal:** Located in Jersey City, New Jersey on the Upper New York Bay, this 25 acre site contains the BW Port Jersey Vehicle Preparation Center.

- **Global Terminal:** Located in Jersey City, New Jersey on the Upper New York Bay, this 98 acre site primarily handles RoRo, containers and heavy lift cargo. Newly acquired by the Port Authority of New York and New Jersey, plans are underway to expand this site to 170 acres and merge it with the Port Jersey-Port Authority Marine Terminal.

- **Howland Hook Marine Terminal:** Located in Staten Island, New York on the Arthur Kill, this facility occupies 187 acres of land. The primary cargo types handled at this facility are containers, general cargo and break bulk.

- **Red Hook Container Terminal:** Located in Brooklyn, New York on the Buttermilk Channel and East River, this facility occupies 65.6 acres of land. The primary cargo types handled at this facility are containers, RoRo and break bulk.

- **Brooklyn-Port Authority Marine Terminal:** Located adjacent to the Red Hook Container Terminal, this terminal occupies 37 acres of land. The primary cargo types handled at this facility are bulk and neo-bulk (uniformly packaged goods, such as wood pulp bales, which store as solidly as bulk, but are handled as general cargo).

- **South Brooklyn Marine Terminal:** Located in Brooklyn, New York on Gowanus Bay, this multi-purpose cargo terminal occupies 74 acres of land. The primary cargo types handled at this facility are RoRo and break bulk.

Figure 8.1 The major commercial maritime terminals of the Port of New York and New Jersey. This map identifies the major cargo terminals contained within the Port of New York and New Jersey.

Source: Guenter Vollath, Port Authority of New York and New Jersey.

Figure 8.2 Port Newark. Photograph. In the foreground is Port Newark. Across Newark Bay are portions of the Jersey City and Bayonne waterfronts.

Source: Maureen from Buffalo, USA
http: www.porttechnology.org news port of newark to undergo 500 million expansion.

In addition to these facilities, in 2010, the Port Authority of New York and New Jersey acquired 130 acres plus almost 100 underwater acres surrounding the peninsula of the former Military Ocean Terminal in Bayonne (MOTBY). This site is located across the Jersey Channel from Global Terminal (Strunsky, 2010a). In 2010, the Authority also purchased the Greenville Yards in Jersey City for the purpose of reviving the barge-to-rail function between New York and New Jersey (Hayes, 2010).

8.3 Commerce

The economic downturn and the beginning of a recovery are evident in the port s trade statistics, showing decreases in 2009 from 2008, but increases in 2010 as shown in Table 8.1.

Table 8.1 Port of New York and New Jersey's Trade Statistics, 2008-2010

	2008	**2009**	**% change**	**2010**	**% change**
Dollar value of cargo (general and bulk-imports and exports)	$190,492,000	$146,050,000	-23.3	$175,790,000	20.4
Total cargo by volume (general and bulk- imports and exports) (in tonnage)	88,907	77,904	-12.4	81,392	4.5
Total containers (loads and empties)	3,068,935	2,652,209	-13.6	3,076,395	16
Vehicular trade (imports and exports)	1,031,540	617,831	-40.1	693,031	12.2

Sources: The Port Authority of New York and New Jersey, 2009 and 2010 Port of New York and New Jersey Trade Statistics.

In 2010, major general cargo by volume coming into the Port of New York and New Jersey are beverages, preserved foods, and plastics, while major general cargo being exported are woodpulp, plastics, and vehicles. Major bulk cargo imports include mineral fuel, oil, sulfur, salt, organic chemicals; while major bulk cargo exports are mineral fuel, oil, iron and steel, and woodpulp. The leading containerized cargo imports by volume are furniture, women's and infant ware, beer and ale, and menswear, and the leading containerized cargo exports are paper, carbon, crepe, automobiles, metal, and household goods. It is the leading vehicle port in the United States (PANYNJ, 2011).

The leading trade partners with the Port of New York and New Jersey by volume of imports and exports are China, with over 27 percent of the trade volume, followed by India, Italy, Germany, Brazil, Netherlands, Japan, UK, South Korea and France with each under seven percent of the trade volume (PANYNJ, 2011).

8.4 Challenges

From its early existence as a port town to its growth as a maritime metropolis, and now as a node on the global supply chain, the Port of New York and New Jersey has faced many challenges. The natural limitations of the waterways and shorelines, wars and blockades, depressions and recessions, and growing competition from other ports are just a few of these challenges. In 2010, the competition among ports contending for customers within the global economy was intense, and the Port Authority of New York and New Jersey, along with its port partners are facing many challenges that threaten the viability and competitive edge of this port. Challenges at the local level include navigational obstructions, efficiency of the vital road and rail network and infrastructure that carry freight beyond the port, and availability of land for warehouse and distribution centers.

8.4.1 Navigational Obstructions

Two examples of navigational challenges for the Port of New York and New Jersey are the need to maintain navigation channels at a depth which will

accommodate large cargo vessels, and the need to increase the vertical clearance under the Bayonne Bridge.

8.4.1.1 Dredging. The deepening of channels carrying large containerships is essential as the natural depth of these waterways is less than 20 feet. The depth needed to keep the port competitive ranges from 35 to 50 feet. The Army Corps of Engineers and the Port Authority of New York and New Jersey have been engaged in major and maintenance dredging projects in the Port of New York since the mid 1990s. The major dredging projects have been phased beginning at 35 feet, and will ultimately result in 50 foot channels. A □1.6 billion project of deepening the port□s navigational waterways to 50 feet involves the following: Ambrose Channel, Kill Van Kull Channel, Newark Bay Channels, Port Jersey Channel, Arthur Kill (to Howland Hook) and Bay Ridge Channel (New York New Jersey Harbor Navigation, nd).

8.4.1.2 Bayonne Bridge. The Bayonne Bridge spans the Kill van Kull and connects Bayonne with Staten Island (see Figure 8.3). Constructed in 1931 by the Port of New York Authority, it has allowed for unobstructed movement of cargo vessels for most of its existence. However, the size of cargo ships and their capacity to hold cargo containers have increased to the point where many ships must either fold their masts or wait until low tide to fit under the bridge. The bridge□s 151 foot air draft or vertical clearance (at high tide) is now restricting movement of cargo vessels, and this situation will only worsen with the widening of the Panama Canal. The Panama Canal Authority is in the midst of a □5.3 billion effort to widen and expand the canal with additional locks set to open in

2014 (Nation□sPort, 2009). The Panama Canal connects the Atlantic and Pacific Oceans, as well as the Asian and European commercial markets. The wider Panama Canal will accommodate post-Panamax ships - a new generation of mega sized vessels that dwarf the current Panamax ships. With the ability to carry over 10,000 TEUs (as opposed to 3,000 to 5,000 being carried on the Panamax vessels today), the post-Panamax ships cannot fit under the Bayonne Bridge. (A TEU is a twenty foot equivalent unit, the size of a standard cargo container.) As an example, two of the largest cargo vessels in the world - the *Emma Maersk* and *MSC Daniela*, hold 12,508 to 14,000 TEU's and have keel to mast heights (KTMH - height of the ship) of 251 and 221 feet, respectively. Even with a 50 foot dredged channel, the maximum KTMH of ships sailing under the Bayonne Bridge can be 198 feet. The *NYK Nebula*, carrying 4,886 TEU's and with a KTMH of 197 feet could not enter Newark Bay when it came to call on the Howland Hook Marine Terminal in March of 2009. As a result, the ship was diverted to the Port of Norfolk at a cost of □80,000, not including the cost incurred from delay of the inventory it was holding (US Army Corps of Engineers, 2009).

Figure 8.3 Bayonne Bridge, Spanning Kill Van Kull between Bayonne Staten Island, Bayonne, Hudson County, NJ. nd. Photograph. This photo shows the Bayonne Bridge and a cargo ship passing under it.

Source: Historic American Engineering Record. Library of Congress, Prints and Photographs Division, Washington, D.C. 20540 USA.

Recognizing the profound economic impact the Bayonne Bridge s height restriction will have on the regional economy, in late 2010 the Port Authority announced its intent to raise the Bayonne Bridge s roadway to a height that would allow the passage of post-Panamax container vessels expected to call on Port Newark Elizabeth-Port Authority Marine Terminal and the Howland Hook Marine Terminal (Strunsky, 2010b).

8.4.2 Landside Transportation Infrastructure

Transportation is a critical link in the global supply chain and the synergy and effectiveness of the transportation system in and extending beyond the Port of

New York and New Jersey is an essential component of the Port's success and continued growth. Goods arriving at the port via ships are transferred to: trucks, which use the local, state and interstate highway system; rail, which utilizes a complex railroad network; or, to a lesser extent, airplanes. The inability of any one of these modes to operate efficiently disrupts the cargo pipeline and threatens the life of the port. A critical artery in the port's intermodal system is the network of interstate, state, and county roads which facilitate the largest movement of freight in New Jersey via trucks. With the New Jersey Turnpike (I-95) serving as the backbone, the adjacent highway network includes I-78, I-280, I-278, US 1□9, US 21, and NJ 22. Seventy five percent of the freight moved in and through New Jersey travels by trucks (NJDOT, 2007).

The freight rail system includes two Class I railroads: Norfolk Southern and CSX Transportation, which provide double stack railroad service to and from the Midwest, New England and Canada and carry non-containerized cargo such as liquid, dry bulk, and scrap metal. Short line railroads in the port area are also an essential transportation mode. Seven percent of the freight moved in and through New Jersey travels by railroad (NJDOT, 2007).

Recognizing that these transportation systems are the arteries that feed the heart of the port and that their upkeep and expansion are vital to the port's life, several government agencies and private entities have embarked upon important projects to ensure an efficient intermodal system, including: New Jersey Department of Transportation's Portway project, a series of freight-oriented roadway projects (NJDOT, 2003); the Port Authority of New York and

New Jersey's ExpressRail, a dedicated intermodal rail system which supplies on-dock, double stack rail service thereby connecting shippers to all major US rail systems (PANYNJ, nd c); and various freight rail improvements being undertaken by both CSX and Norfolk Southern in an effort to move freight to and from the port more efficiently (Parsons Brinckerhoff Quade Douglas, Inc., 2007).

8.4.3 Warehouses and Distribution Centers

Warehouses and distribution centers represent another important link on the global supply chain. As the "first place of rest" for containers entering the port (NJDOT, 2003, p.VIII-1), they are primarily used for the "receipt, temporary storage and distribution of goods en route to points of consumption" but may also include value added activities such as customization of the product - tagging and packaging (NJDOT, 2004, p.23). With the increase in global trade, the demand for such facilities is expected to double by 2030 requiring a capacity of 1.3 billion square feet (North Jersey Transportation Planning Authority [NJTPA], 2001). Such demand will be a direct result of the deepening of the Port's channels allowing the arrival of post-Panamax ships from Asian markets.

As the demand for warehouse/distribution centers has increased, there has been a growing trend to construct these facilities in the vicinity of Exits 8A (South Brunswick) and 7 (Bordentown) of the New Jersey Turnpike, as well as eastern Pennsylvania, all outside of the port district. The attractiveness of these destinations can be attributed to two factors: the direct route they provide to the port from highways such as the NJ Turnpike and I-78 and thousands of available acres of "clean", less expensive land for building these facilities. Facilities at

these locations can be built quickly, partially because of the lack of site cleanup required on these "greenfields" and they can be built cheaply, due in part to the area's lower property values. There are, however, drawbacks to these more distant locations. The increase cost of drayage (moving goods from the port to distribution centers), New Jersey's congested highways, and Federal restrictions imposed on the truck driver's time behind the wheel in a given day (Hudgins, 2006). With the ever increasing need for quicker cargo turn-around times from the port to the ultimate consumer, these locations prove to be remote.

While developing on "greenfields" at a distance from the port has certain benefits in terms of construction cost and construction time, siting warehouses and distribution centers close to the port offers a number of advantages:

- The velocity of the movement of goods, and the number of production, assembly and orders filled required by the acceleration through the global supply chain, can be managed better closer to the port (NJDOT, 2004).
- Trucks can make multiple trips in one day between the warehouse, the port and other transportation facilities (NJDOT, 2004).
- Distributors can decrease handling time, delays due to traffic congestion, and labor costs (NJDOT, 2004).
- The port district possesses a large skilled and trainable labor force. On a daily basis, that labor force is transported (by van) to the Exit 8A and 7 areas to work in warehouse/distribution centers. Locating port-related businesses near the port and the workforce makes more business sense (Crawford, 2006).

The major disadvantage of locating warehouses and distribution centers in the port district is the limited availability of easily developable land.

As the Port of New York and New Jersey is a gateway to continental distribution via a vast network of rail and road, it is attractive to the international

market. To compete in the global economy, the Port of New York and New Jersey must continuously adapt to changing technologies and trends, and must have adequate onsite operations and landside capabilities. While the Port Authority of New York and New Jersey is a government entity, it must think and act as a business striving to grow and remain viable. Local constraints (including navigational obstacles, landside transportation infrastructure, available land for warehouses and distribution centers) present challenges to successfully competing in the global market. As will be discussed in Chapter 13, the relationship the port and the Port Authority of New York and New Jersey have with local municipalities also impacts the growth and vitality of this port.

CHAPTER 9

THE PORT-CITY EVOLUTION MODEL AND THE PORT OF NEW YORK AND NEW JERSEY PORT-CITY EVOLUTION MODEL

9.1 Assessing the Port-city Evolution Model Using the Port of New York and New Jersey

With his Port-city Evolution Model Hoyle (1998) contends that ports have evolved through a series of six distinct stages from ancient□medieval times to 2000□ and, as a result, the port-city relationship has changed (see Figure 9.1).

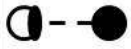
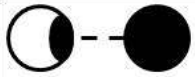
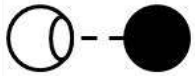
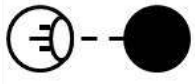
Stage	Symbol ○ City ● Port	Period	Characteristics
I Primitive port/city		Ancient, medieval to 19th century	Close spatial and functional association between port and city
II Expanding port/city		19th-early 20th century	Rapid commercial/industrial growth forces port to develop beyond city confines
III Modern industrial port/city		Mid-20th century	Industrial growth and introduction of containers/RoRo require separation/space
IV Retreat from the waterfront		1960s-1980s	Changes in maritime technology induce growth of separate industrial maritime areas
V Redevelopment of the waterfront		1970s-1990s	Large-scale modern port consumes large areas of land/water space; urban renewal of original core
VI Renewal of port/city links		1980s-2000+	Globalization and intermodalism transform port roles; port-city associations renewed

Figure 9.1 The Port-city Evolution Model.

Source: Adapted from (Hoyle, 1998).

This is a *generalized linear* depiction of ports that considers the association between a single port and a single city. It incorporates only spatial and functional associations between the port and the city, and it portrays technology and the innovations born from such technology as the driving forces that moved the port from one stage to the next.

The evolution of the Port of New York and New Jersey does not fit this model. The scale, scope and complexity of the Port of New York and New Jersey do not fit the model's general framework. The Port of New York and New Jersey is a complex port that contains multiple cargo handling terminals in multiple municipalities in two states. Its multiple port-city relationships have multiple relational aspects, not just spatial and functional ones. And a combination of forces, not just technology, has stimulated its evolution. Nonetheless, some aspects of some stages in Hoyle's model are characteristic of the Port of New York and New Jersey. In the following sections I describe both the similarities as well as the differences between Hoyle's Port-city Evolution Model and the evolution of the Port of New York and New Jersey.

9.1.1 One Port to One City Association

The Primitive Port□city stage of the Port-city Evolution Model shows a one port to one city association. The early history of the Port of New York and New Jersey indicates that the Port of New York originated at the southern tip of Manhattan and that a close spatial and functional association between the port and the city existed at that time. Thus, the earliest stage of the evolution of the Port of New York and New Jersey is consistent with the first stage of Hoyle's model.

However, Hoyle's one port-one city association for all subsequent stages does not reflect the case of the Port of New York and New Jersey. In the late 1800s, maritime infrastructure and industry crowded the Manhattan waterfront leading to the expansion of the port to Brooklyn and the Hudson County shores. By the 1980s, the Port of New York and New Jersey's cargo handling facilities were spread out throughout the port region: in Manhattan, the Bronx, Brooklyn, Staten Island, Jersey City, Hoboken, Newark and Elizabeth. In 2010, they continued to be dispersed in: Brooklyn, Staten Island, Jersey City, Bayonne, Newark and Elizabeth. Hoyle's one port-one city characterization does not capture this port's situation.

9.1.2 Port-city Relationship: Beyond the Spatial and the Functional

The historic overview of the evolution of the Port of New York and New Jersey, as presented in Chapters 4 through 8, demonstrates multifaceted associations between the port and the cities. While the Port-city Evolution Model focuses exclusively on the spatial and functional aspects of the port-city relationship, an understanding of other aspects of this relationship is needed to fully comprehend this port's evolution. Politics and economics are key components of the port-city relationship, heavily influencing the evolution of the Port of New York and New Jersey in an intertwined fashion.

The political forces that influenced the evolution of the Port of New York and New Jersey frequently originated in economic issues. Conflicts between the states of New York and New Jersey led to law suits and a Supreme Court decision regarding the jurisdiction of the waters dividing the states, the land

under the waters, the islands within the waters, and improvements including the location of docks and wharves on the New Jersey shoreline (Bird, 1949; Doig, 2001; Raciti, 1968; Interpretation of New York-New Jersey Agreements of 1834 and 1921). The two states disagreed about the rates railroad companies charged for hauling cargo into and out of the Port of New York (Bird, 1949; Doig, 2001; Raciti, 1968). Even when the two state governors agreed that the port area was a single region and a bi-state agency should be created with responsibility for cooperative planning, local governments were leery of this new political body fearing a loss of control over the economic potential of their respective waterfronts and associated jobs (Doig, 2001). In 1948, when the Port of New York Authority offered to purchase the city's waterfront facilities and finance a modernization program, the New York City government rejected the Authority's proposal fearing the loss of control over the waterfront's economic potential and backlash from the longshoreman's union (Doig, 2001).

These conflicts and legal battles led to legal opinions that the shores of New York City and Hudson County were part of a single port and to the creation of the Port Authority of New York and New Jersey. The political decision that the New York City maritime infrastructure would not be sold to the Port of New York Authority led to the Authority setting its sights on a New Jersey port for its modernization program. This is but a sampling of how the political and economic aspects of the port-city relationship influenced the evolution of this port.

9.1.3 Driving Forces behind the Retreat from the Waterfront

In the stage called Retreat from the Waterfront, Hoyle contends that maritime technology (including containerization) was the driving force behind the retreat of the port from its original waterfront location to wide open areas downstream near deeper waters. While in the mid-20th century the Port of New York facilities did begin to move away from their original maritime waterfront locations to Newark, Elizabeth, Brooklyn and Staten Island, the impetus for this movement was not containerization. It is a common misconception that the Port of New York Authority shifted its geographic focus from New York to New Jersey, specifically to the shores of Newark Bay because of containerization, and that geographic move led to the decline in port activities in Manhattan (Warf, 1988, McLoughlin, 2005). The historical research conducted for this dissertation contradicts this assertion. While it is true that the Port of New York Authority constructed a container port in the City of Elizabeth that eventually attracted New York port businesses, the Port of New York Authority set its sights on Newark Bay *before* the advent of containerization.

When the Port of New York Authority began to focus on port activities and commercial maritime infrastructure in the 1940s, it faced a multitude of obstacles: old, obsolete and decaying facilities in Manhattan and Brooklyn (Bird, 1948); various private and public maritime facility owners (Doig, 2001); dwindling municipal finances that impeded the needed infrastructure upgrades (Betts, 2004); congestion at the docks and on the streets that hampered cargo handling (Shell, nd); and political resistance to the Port of New York Authority's control of

waterfront activities (Doig, 2001). The Port of New York Authority concluded that neither private nor government investors could raise the tremendous capital required to upgrade these existing New York facilities, or to construct modern ones. In order to create and maintain a world class, competitive port, the Port of New York Authority needed to seek other options (PANYNJ, Transportation Task Force, 1979). The Authority thought that a single modern cargo facility could replace several obsolete facilities on the Manhattan and Brooklyn waterfronts (Tobin, 1955). As a result, the Port of New York Authority turned its attention to an existing port facility in Newark in order to increase the Port of New York's commercial maritime capacity and efficiency (Bird, 1949; Levinson, 2006), not to accommodate containerization. An initial objective for taking control of Port Newark was to dredge the channel and construct a modern facility for the Waterman Steamship Company that was then located in Brooklyn (Levinson, 2006).

After several years of discussions, studies and negotiations, the Port of New York Authority took control of Port Newark in 1948. Malcolm McLean had not yet presented his idea of replacing break-bulk cargo methods with a containerized method to the Port Authority. That conversation did not take place until six years later (Doig, 2001) and containerization, even then, was seen as risky. "Containerization was a wild gamble, a speculative venture to which no one would have been willing to commit prime land in Brooklyn and Manhattan" (White, 1981, p.49). A dock in Port Newark was customized to handle the

containerization *experiment*, and in 1956, the first container ship sailed from Port Newark (Doig, 2001).

Because the Port of New York Authority's take-over of Port Newark was a success, in 1955 (one year prior to the maiden voyage of McLean's container ship) the Port of New York Authority announced that it would extend Port Newark southward by developing a 450-acre tract of marsh land in the City of Elizabeth. In 1958 the Port Authority began this construction, but ultimately redesigned its original plans to create a port facility that could accommodate container ships. In 1962, the facility opened and Sea-Land became the first tenant (Doig, 2001). Even though the Elizabeth-Port Authority facility was designed for container ships, containerization did not "take off" until many years later. In 1962, only eight percent of general cargo in the Port of New York was containerized; on the west coast of the US, it was only two percent. It would be several years before containerization was the predominant method of handling cargo (Levinson, 2006). In the long run, however, "the benefit of the defeat in New York was that the Authority did not invest millions in modernizing the city's finger piers, which a few years later would be of little use because of the "containership revolution" (Doig, 2001, p.354).

9.1.4 Redevelopment of the Waterfront

In the Redevelopment of the Waterfront stage of the Port-city Evolution Model, the original maritime waterfront that is abandoned by the port industry is redeveloped for uses not related to the port. This type of redevelopment did occur on the port-abandoned waterfronts in Manhattan, Brooklyn and Hudson

County. However, the time period for the redevelopment of these waterfronts is inconsistent with the Port-city Evolution Model. While the model indicates that port-abandoned waterfronts were being redeveloped from the 1970s through the 1990s, the time period of this case study's redeveloped waterfronts began in the mid 1980s and continues through 2010. New land uses such as public housing, high rise apartments, a hospital, and even the United Nations rose from the former sites of stockyards, rail facilities, and maritime infrastructure in the late 1940s and early 1950s. But the type of waterfront redevelopment Hoyle is referring to in his model - high end residential, recreational, hotels and conference centers, retail and tourist attractions - did not appear in brick and mortar on the New York and New Jersey port-abandoned waterfronts until the late 1980s (with the exception of the 1970s appearance of Battery Park City and Liberty State Park). This kind of waterfront redevelopment was prominent in the 1990s and continues into the early 2000s with projects such as the Brooklyn Bridge Park and the Bayonne Golf Club.

While port-abandoned waterfronts in the Port of New York and New Jersey have been and continue to be redeveloped for non-port and non-industrial uses, an interesting turn of events has occurred on Bayonne's Upper New York Bay waterfront. The US Navy identified the Upper New York Bay as an ideal location for a military ocean terminal and, from dredged materials, created a peninsula extending from the Bayonne waterfront in 1942. The Military Ocean Terminal at Bayonne (MOTBY) opened as a logistics and repair base that included the largest dry dock on the east coast, a huge shipping terminal and

warehousing for military supplies. In 1995, the Defense Base Closure and Realignment Commission determined that the facility was no longer needed (Bayonne Military Ocean Terminal, 2010). Following the path of so many waterfront cities, Bayonne, through its local redevelopment authority, envisioned new uses for this port-abandoned waterfront. The plan, named the Peninsula at Bayonne Harbor, proposed mixed-use neighborhoods of residential, commercial, cultural, entertainment uses and open space. In addition, a portion of the peninsula was designated for marine and transportation facilities. This site at full build out would have included up to 7,000 housing units (J. Fussa, personal communication, September 3, 2010). However, in 2010, the redevelopment plans for this waterfront were altered with the sale of 130 acres (originally designed for non-port related uses) to the Port Authority of New York and New Jersey in a □235 million agreement. Facing a □28 million shortfall in the city□s 2010 budget, the Bayonne Redevelopment Authority chose to sell a portion of the property originally designated for non-port related uses, providing the city with □40 million up front, □100 million over the following two years and the remaining funds over the 20 years (Sullivan, 2010, August). While a portion of the peninsula has been redeveloped for residential uses (see Figure 9.2), the monetary gains from selling a large portion of the peninsula for commercial cargo handling facilities outweighed the desire for new mixed-use waterfront development. This certainly does not fit the Port-city Evolution Model, as new port related facilities are proceeding alongside non-port related uses.

Figure 9.2 Residential portion of The Peninsula at Bayonne Harbor. 2010. Photograph. This photo shows new roadways and residential units constructed on the former Military Ocean Terminal at Bayonne site.

Source: Jim Henderson, http: en.wikipedia.org wiki File:MOTBY housing jeh.jpg.

9.2 Port of New York and New Jersey Port-city Evolution Model

Since the evolution of the Port of New York and New Jersey does not fit the Port-city Evolution Model, a new model is presented. While this new model was inspired by the Port-city Evolution Model and bears some similarities to it, the new model is specific to the evolution of this port and was created based on the historic accounts provided in Chapters 4 through 8 of this dissertation.

The Port of New York and New Jersey Port-city Evolution Model (see Figure 9.3) is divided into six stages and spans a time frame from the 1500s to 2010. Each stage refers to a specific time period and is characterized by various aspects of the port-city relationship. The time periods of some stages overlap. A description of each stage is provided below.

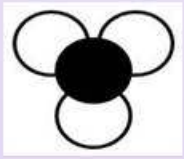
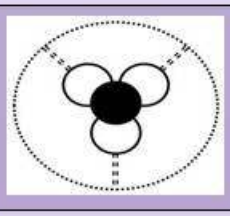
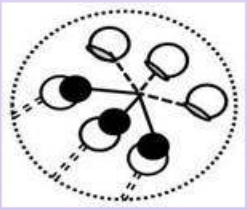
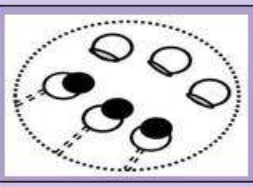
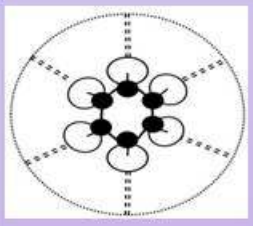
Stage	Period	Major Forces that Influenced the Port Evolution	Symbol City Port Port Authority (PA) PA-city relationship	Port-city Relationships
I. Port Town	1500s-early 1800s	Mutual port-city economic dependence; legal and public funding mechanisms encourage port's physical growth.		Interdependent port-city relationship characterized by spatial, functional, economic, political and societal aspects.
II. Maritime Metropolis	early 1800s-early 1900s	Technology and innovations transform port and extend its reach; port and cities have mutual economic dependence; political and legal battles over rail rates, and use of water and waterfronts.		Interdependent but complicated one port-multiple cities relationships.
III. Port Unification	1940s-1980s	PA transforms collection of multiple, port components into a port system.		Some port-city relationships become strained, some are severed, some flourish; PA-city relationships form.
IV. Retreat from the original waterfront	1940s-1980s	Weak economic base; technological changes in transportation and cargo handling ; PA modernizes and invests in facilities in new locations; port-abandoned waterfront decays.		Port-city and PA-city relationships continue to change.
V. Redevelopment of the original waterfront	1960s-2010+	New environmental regulatory framework for cleanup of pollution; economic renewal of port-abandoned waterfront.		Port-city relationships cease in port-abandoned areas that redevelop for non-port uses.
VI. Contemporary regional port system	1980s-2010+	Global economy transforms port business but physical port components and operations are subject to regulations and influences of many federal, state and local stakeholders.		Multiple and unique port-city and PA-city relationships exist characterized by spatial, functional, economic, political and societal aspects.

Figure 9.3 Port of New York and New Jersey Port-city Evolution Model. The model shows the evolution of the Port of New York and New Jersey through six stages from the 1500s to 2010.

Port Town Stage. Beginning around 1500 and continuing into the early 1800s, the southern tip of Manhattan grew from a trading community to the epicenter of maritime activity. Its location on the East and Hudson Rivers provided a natural setting for establishing a port. Boats offloaded cargo directly into the city, with the waterfront itself serving as a marketplace for the exchange of goods. Lower Manhattan grew around these maritime activities. Private enterprises controlled much of the trading activity, but the public sector (the Dutch, English and colonial governments) encouraged it through legal and funding mechanisms that permitted: construction of maritime infrastructure, construction of roadways leading to and from the waterfront, and filling portions of the waterways to extend the waterfront. The port and the city had a mutually dependent relationship characterized by spatial, functional, economic, political and societal aspects.

Maritime Metropolis Stage. The Industrial Revolution helped transform the port town into a maritime metropolis. This stage extends from the early 1800s to the early 1900s. Inventions and innovations including the steamboat and the ocean liner, the opening of the Erie Canal, and the establishment of railroad service all significantly influenced the growth of the Port of New York in the 1880s. These innovations extended the port's reach both in the US and abroad and spurred rapid industrial growth that included the establishment of oil refineries and manufacturing facilities. The economic vitality of the city depended upon the economic success of the Port of New York.

A metropolis is a central or principal place of an activity. While the central activity was maritime, the central place was no longer the tip of Manhattan. The one port-one city association in the Port Town Stage changed to an association between one port and multiple cities in two states. During the Maritime Metropolis Stage the Port of New York contained a collection of interconnected port components including terminals, maritime infrastructure, port-related businesses, and rail infrastructure that covered miles of waterfront in Manhattan, Brooklyn and various Hudson County municipalities. During this stage, the port and the cities still had a mutually dependent relationship characterized by spatial, functional, economic, political and societal aspects, but the growth of the port in multiple municipalities in two sates complicated that relationship, primarily in terms of economic and political aspects. The Maritime Metropolis Stage is characterized by uncontrolled waterfront and maritime infrastructure growth and multiple legal battles spurred by the economic interests of two states and several municipalities.

Port Unification Stage. The Port Unification Stage, extending from the 1940s to the 1980s, was a critical turning point for the Port of New York and New Jersey. It was during this stage that the collection of multiple, interconnected port components was transformed into a single port system. The Port of New York Authority orchestrated this transformation.

There were many reasons for this unification. First, the Port of New York Authority was created because, although legal bodies had declared the maritime activities on both the New York and New Jersey sides of the Hudson River and

Upper New York Bay to be of one port, conflicts between the states continued to jeopardize the prominence of that port. Thus, the new Port Authority sought to create one port from this collection of port components. The Port of New York Authority's charter gave the agency the power to unify the port. The Port Authority's prime arguments for transforming the port were the deteriorated condition of the port's maritime infrastructure after the US military ended its occupation of the port and the financial inability of the local governments to modernize the infrastructure. The Port of New York could not continue to be the region's economic engine with infrastructure that was obsolete and decaying. In order for the port to continue its prosperity and meet the challenges posed by national economic changes, maritime technological advancements and a growing population, the Port Authority had to invest in and modernize the port.

The Port Unification Stage was also a critical turning point for the port-cities relationships. Some port-city relationships became strained, some were severed and others flourished. For example, although there had been a port-city relationship between Newark and its port decades before the Port Authority took control, once the Port Authority took control the port-city relationship flourished. As Port Newark grew, so too did the port's footprint (spatial), port related infrastructure and transportation connections (functional), revenues for the city (economic) and jobs (societal). Conversely, the port-city relationship in Manhattan deteriorated. By the end of this stage (1980s), the Port of New York and New Jersey's cargo operations grew in Newark from 29 percent to 92 percent but in Manhattan they decreased from 25 percent to one percent

(Rodrigue, 2005). Thus in Manhattan, the spatial, functional, economic and societal aspects of the port-city relationship diminished. In addition to the port-city relationships, Port Authority-city government relationships created a new dimension in the political aspects of the relationships.

Retreat from the Original Waterfront Stage. The Retreat from the Original Waterfront Stage occurred concurrently with the Port Unification Stage for a few reasons. As the Port of New York Authority sought to unify the port through investments and modernization of port infrastructure, much of this activity occurred away from the original port locations in lower Manhattan, Brooklyn and Hudson County, primarily because of the constraints of available land and existing maritime facilities and political resistance (as discussed in Chapter 6). In addition, changes in cargo transportation (from rail to truck, from break bulk to containerization) and changes in the region s industrial base (including the severe decline in the manufacturing industry) also contributed to the abandonment of the waterfront. Neither the Port Unification Stage nor the Retreat from the Original Waterfront Stage occurred overnight. They were both long processes and served as foundations for changes to the port and changes to the waterfront that followed in subsequent years (as depicted in the Redevelopment of the Original Waterfront and Contemporary Regional Port System stages of this model).

The Retreat from the Original Waterfront Stage is characterized by the slow exodus of the maritime facilities, port-related businesses and industries from the lower Manhattan, Brooklyn and Hudson County waterfronts. Those activities

either shifted to new locations within the Port of New York or completely left the region. For example, while military operations left the Brooklyn waterfront, a new military facility (MOTBY) was created on the Bayonne waterfront. Additionally, port businesses that existed in Brooklyn, including the Waterman Steamship Company, relocated to Port Newark (Levinson, 2006). What remained were: burning and rotting piers and wharves; abandoned and rusting railroad tracks, yards and sheds; empty and vandalized manufacturing plants, terminals and warehouses; polluted land and waterways; and a weak and unstable economic base.

During this stage, relationships between the port and the original waterfront cities were tenuous at best. The movement of the port facilities away from the original waterfronts caused changes in all aspects of the port-city relationships. For some cities the port did not completely leave, it just changed waterfront locations. For example, while commercial port activities left their original locations in lower Manhattan and Brooklyn, new port facilities relocated to other areas of Brooklyn and Staten Island. Thus, a port-New York City relationship remained, albeit altered. Additionally, in Hoboken, privately owned piers and businesses left the waterfront, but the Port of New York Authority established a presence on that waterfront. Thus, a port-city relationship remained, and a Port Authority-Hoboken government relationship emerged. Despite the presence of new port facilities in New York City and some municipalities in Hudson County, the port's abandonment of the original waterfront had weakened the port-city relationships in those places.

Redevelopment of the Original Waterfront Stage. The Redevelopment of the Original Waterfront Stage (1960s-2010) overlaps the time periods of the Retreat from the Original Waterfront Stage (1940s-1980s). Redevelopment planning and implementation have occurred over time and in different ways. As the original waterfront abandoned by the port and industries was vast in size and situated in two different states and several different municipalities, there was no single concerted effort to redevelop the waterfront, nor one redevelopment plan.

The Redevelopment of the Original Waterfront Stage began with the realization of state and local elected and planning officials and community groups that: the maritime and manufacturing industries were no longer the foundation of the region's economy; years of environmental degradation had taken a toll on the waterways and waterfronts; and planning for the future was a necessity. The waterfront, once commandeered by the maritime industry, was viewed as a mechanism for urban economic renewal and revitalization of the cities' image. A new federal and state environmental regulatory framework assisted not only the cleanup of the polluted waterfront and waterways, but also the prevention of future degradation. Years of planning and economic resurgence have altered the once industrial waterfront to one of high density residential, commercial, retail and recreational uses and have reconnected the public with the water in many locations along the lower Hudson and East Rivers and Upper New York Bay. In these areas, a port-city relationship no longer exists.

Contemporary Regional Port System Stage. Since the 1980s, the Port Authority of New York and New Jersey has made strides not only in transforming

a collection of port facilities into a contemporary regional port system, but also in transforming this port system into a gateway for world commerce. When national economies became integrated into a global economy through new means of trade, foreign direct investments and the international flow of capital, the global supply chain was created. If the global transportation network is the circulatory system of the international economy (Center for Urban Pedagogy, 2011) then the Port of New York and New Jersey is a major artery. This port is no longer a terminus; it is a major node on the global supply chain and a gateway to continental distribution via a vast network of rail and roads.

While the Port of New York and New Jersey has a new role in the global economy, it also shares systems at the local and regional scales (such as transportation). Several port facilities constitute the commercial cargo components of the Port of New York and New Jersey (see Figure 9.4), and while they are located in several municipalities in two states, they are part of a single port and are impacted by the same local and global forces. While the Port of New York and New Jersey's business is firmly situated at the global scale, its physical components exist at the local scale and are subject to the laws, regulations and influences of many state and local stakeholders (as discussed in Chapter 13). Thus, port-city relationships and Port Authority-city government relationships are both critical and heavily influence port operations.

As indicated in Figure 9.4, many relationships characterize the Contemporary Regional Port System Stage. Each municipality has a relationship with the port facility located within its geographic jurisdiction. In addition, each

municipality has a relationship with the Port Authority of New York and New Jersey. Every one of these relationships has spatial, functional, economic, political and societal aspects, and every one of these relationships is unique. (For a more detailed discussion of the port-city and Port Authority-city government relationships for the five Newark Bay municipalities, see Chapter 12).

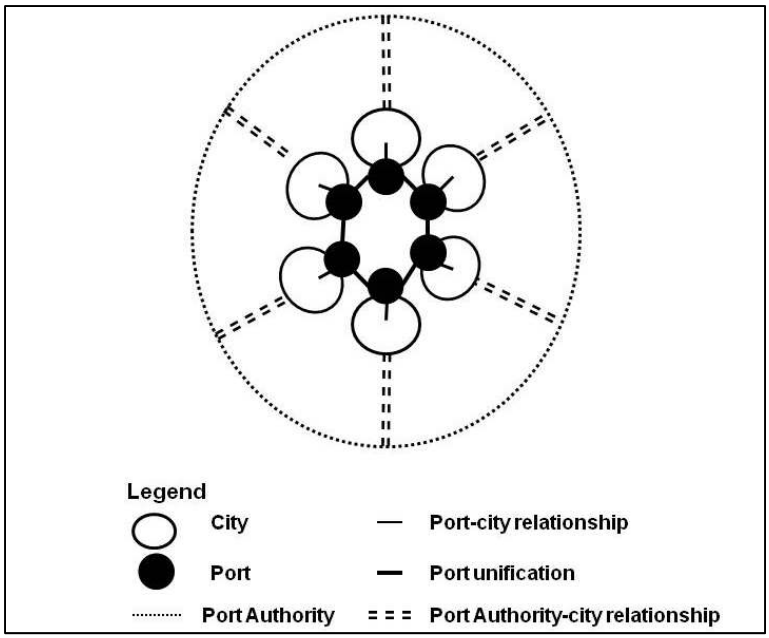


Figure 9.4 Contemporary Regional Port System. This figure shows the most recent stage in the Port of New York and New Jersey Port-City Evolution Model, indicating that there are several port facilities contained within the Port of New York and New Jersey, as well as several types of relationships.

9.3 Applying the Port of New York and New Jersey Port-city Evolution Model to Other Ports

Although the Port of New York and New Jersey Port-city Evolution Model was created for a specific port, it can be generalized and used as a framework for researching, analyzing and presenting the evolution of other ports, especially those that involve multiple cities. The basic framework of the Port of New York

and New Jersey Port-city Evolution Model consists of four elements: evolutionary stages, time periods, forces that influenced the port's physical grow and physical movements, and port-city relationships. The port-city relationship involves several aspects including spatial, functional, economic, political and societal. In conducting research on the history of a particular port and on the port-city relationship, several questions should be asked, including:

- Over the course of this port's history, where were port facilities (terminals, docks, wharves, piers, drydocks, etc.) located? Where were port-related industry and facilities (railroads, carfloats, manufacturing) located? What time periods did these facilities and industries exist in those locations?

- What technological innovations affected the port? How and when did they affect the port?

- What influenced the type and amount of commerce handled at the port?

- What were the regional and local economic conditions and how did these conditions influence or impact the port's activities?

- What legal challenges affected the port?

- What agencies or governments had authority over port activities, waterfront development and the waterways?

- What role did politics play in affecting the port operations, port facility locations, waterfront development and commerce?

- What types of state, regional and local planning activities occurred that influenced or impacted the port?

- Did port activities move away from certain waterfronts? When did that occur? How did that impact the use of these waterfronts? Were these port-abandoned waterfronts redeveloped? When were they redeveloped and what were the new land uses? What planning efforts were undertaken to encourage that redevelopment?

- In the past and in contemporary times, does the local population and local government(s) benefit from the port? How do they benefit (jobs, goods)?

- In the past and in contemporary times, do the port activities negatively impact the local population and local government(s)? What are the impacts and has anything been done to change such impacts?

- How does the local government(s) interact with the agency that controls the port (if the local government does not control the port)?

- Are there financial arrangements between the agency that controls the port and the local government(s), such as payment-in-lieu-of-taxes?

- Does the agency that controls the port coordinate with the local government(s)?

- Have there been any conflicts between the agency that controls the port and the local governments? What were the sources of these conflicts? Were and how were they resolved?

- Does the agency that controls the port coordinate with the local government(s)?

- What global, regional and local challenges is the port facing in contemporary times? What actions are being taken to meet these challenges?

When each question is answered with historical facts and perspectives of the stakeholders, the four elements become populated and the result is a model specific to that port.

PART III: THE NEWARK BAY MUNICIPALITIES

CHAPTER 10

HISTORY OF NEWARK BAY MUNICIPALITIES WATERFRONT LAND USES

Five New Jersey municipalities lie on Newark Bay: the cities of Elizabeth, Newark, Jersey City and Bayonne and the Town of Kearny (see Figure 10.1). Three of the five municipalities are ranked in the top four largest cities by population in New Jersey: Newark (1), Jersey City (2), and Elizabeth (4). The study area contains the following sections of the five Newark Bay municipalities:

- the southeastern portion of the City of Elizabeth referred to as Elizabethport;
- the southeastern portion of the City of Newark referred to as the Ironbound section within the East Ward;
- South Kearny (and its tip called Kearny Point);
- the southwestern portion of the City of Jersey City; and,
- the entire western portion of the City of Bayonne (and its tip called Bergen Point).

In 2010, within the study area, Newark Bay waterfront properties stretch for approximately 113,000 linear feet, with approximately 17,000 linear feet in Kearny (including some waterfront property abutting the Passaic and Hackensack Rivers), approximately 15,000 linear feet in Jersey City (including waterfront property abutting the Hackensack River), and 33,000 linear feet in Bayonne (including waterfront property abutting the Kill Van Kull). Of the approximate 25,000 linear feet in Elizabeth, almost 6,000 linear feet is dedicated

to the Elizabeth-Port Authority Marine Terminal. Of the approximately 23,000 linear feet of Newark Bay waterfront property (and some abutting the Passaic River) in Newark, approximately 7,000 linear feet is dedicated to Port Newark (see Figure 10.1).

The Newark Bay waterfront was not always configured as noted above. Over the past two hundred years, some of the shorelines have been altered (cut or filled). It is important to note that the base map for Figures 10.3, 10.6, 10.10 and 11.1 which illustrate waterfront land uses from the 1800s - 2010 is based on New Jersey Department of Environmental Protection and New York City Department of City Planning 2011 GIS files. One standard base map was chosen so that waterfront land use comparisons can easily be made between the time periods discussed in this chapter.

Figure 10.1 New Jersey municipalities on Newark Bay. This map identifies the location of the five Newark Bay municipalities, Port Newark and Elizabeth-Port Authority Marine Terminal, and Newark Bay.

Source: Base map- New Jersey Department of Environmental Protection and New York City Department of City Planning GIS Files.

The purposes of this chapter are to: provide a brief overview of the industrial growth of each of the Newark Bay municipalities; highlight historic port activities that occurred on the shorelines of Newark Bay; discuss the Newark Bay waterfront land uses in four time periods (the 1800s the early 1900s, 1920s - 1930s, mid-1900s, and 1980s - 1990s); and show how waterfront land uses changed over this almost 200 year period. The discussion in each time period begins with Elizabeth, then Newark, Kearny and Jersey City, and concludes with Bayonne (making a clockwise movement along Newark Bay). It is interesting to note that land uses on Elizabeth and Bayonne s waterfronts were often times mixed. That is, an industrial facility may have been located next to parks and houses. Much of this occurrence was before the advent of Euclidean Zoning (beginning in some parts of the US in the late 1920s) which segregated land use types.

It is important to note that many of the historic industrial and recreation land uses along the waterfront were water dependent. Many businesses received their raw materials via boats and ships and shipped their goods on these water crafts. Water dependent recreational activities such as boating clubs located on these shores. Awareness of this historical context is important background for understanding the challenges the commercial maritime industry faces in 2010 as discussed in Section 13.1.2.

10.1 Industrial Growth

Although incorporated into their present day municipalities in the 1800s, the lands these cities and town occupied were all settled in the early to mid 1600s.

The Industrial Revolution heavily influenced the growth of all five municipalities, and all five participated in maritime activities.

During the 1800s, a prime industry in the City of Newark was the manufacture of leather and leather goods including shoes. With the establishment of the first patent leather making factory in 1819, the industry grew to 155 such factories by 1837. Less than 30 years later, 90 percent of all patent leather was manufactured in Newark. Other major manufactured items included chairs, hats, jewelry and carriages (Tuttle, 2009).

While many manufacturers called the City of Elizabeth home, the first major industry in the city was the Singer Manufacturing Company which opened its plant in 1873 and served as the city s largest employer for 80 years. The Singer compound occupied over 100 acres and included over 50 buildings, athletic fields, a yacht club, and a fire department. The Edward Clark, the company s steamship carried finished sewing machines to the New York City market (Turner Kales, 2003).

The Town of Kearny s industrial development began with the establishment of the Clark Thread Company of Scotland in 1875, which employed thousands of Scottish immigrants. A few years later, the Narin Linoleum Company (which later merged with the Congoleum Company) placed Kearny in a prominent position in the linoleum industry. Other Kearny industries included: oil refineries, slaughtering and meat packing, and telephone equipment (Krasner and the Kearny Museum, 2000).

Industrial activities in the cities of Jersey City and Bayonne were discussed in an earlier section of this dissertation. In summary, the manufacturing industry in Jersey City included tobacco, sugar, oil, lumber, iron and chemical products; while Bayonne's principle industries included oil refining, chemical works, and boat and ship construction.

10.2 Port Activities

Much of the literature of the Port of New York's history is New York City-centric with some nods to the New Jersey side of the Hudson River because of the railroads' involvement in the port. But it is important to note that during the Port of New York's rise to commercial maritime prominence, other port activities were occurring within the region. The cities of Elizabeth and Newark and the town of Kearny contained commercial maritime industries that made major contributions to the Port of New York beginning in the 1800s. As early as 1816 with the construction of expanded docks, Elizabethport, the section of the city on Newark Bay south of the present-day Elizabeth-Port Authority Marine Terminal, had a commercial maritime function. The construction of the Elizabeth and Somerville Railroad in the 1830s established Elizabethport as a critical rail to ferry transfer site. By the late 1800s, over ten million tons of cargo passed through Elizabethport and thousands of vessels annually called on the port (Olsen, 2008). Coal from Pennsylvania and food from New Jersey farms were prominent among the cargo moving through Elizabethport bound for New York City (Turner Kales, 1996). Ship building was a major commercial maritime industry in Elizabeth. In the late 1800s, S.L. Moore Son Crescent Iron Works located in

Elizabethport. It was later purchased by US Ship Building Corporation (1902), Bethlehem Steel Corporation (1905) and Bethlehem Ship Building Corporation (1917). From 1899 to 1928, over 100 vessels were constructed at the Crescent, 50 of which were US government ships. In 1892, the US Navy's first steel ship The USS Bancroft and in 1903, the first US Navy submarine The SS Holland were constructed in Elizabethport (Turner Kales, 1996, 2003).

The City of Newark also had maritime activity in the early 1800s. In the 1820s, regular passenger and freight service ran between Newark and Savannah and Newark and Charleston. It was an 1836 act of Congress declaring Newark as an official port of entry that expanded Newark's port functions allowing ships from foreign ports to call. In 1915, the City of Newark undertook the Bayfront Development and Meadow Reclamation Project, which involved transforming 4,000 acres of marshland into port and industrial facilities. A 7,000 foot long by 400 foot wide channel was dug; 4,500 feet of dock frontage and a 1,200 foot long pier were constructed; and railroad tracks were extended to create the Port of Newark, a city-owned facility (*The New York Times*, 1915). A major boost to this new port was a 1917 US government contract secured by the Submarine Boat Company to build 50 freighters. This gave rise to the quick construction of shops and warehouses at the port to support this ship building endeavor (Cunningham, 2002). The 17 million shipyard was the second largest in the United States during World War I and employed 25,000 during the peak of activity (Newark Bay Shipyard, 2011).

The Town of Kearny s major contribution to the Port of New York was facilitated with the 1917 establishment of the Federal Shipbuilding Dry Dock Company, a subsidiary of the United States Steel Corporation (see Figure 10.2). Converting 160 acres of marsh land in South Kearny, the facility was established to construct vessels including destroyers, cruisers and merchant ships to support the WWI effort. Federal Shipbuilding not only was a major commercial maritime industry, it was a major employer of Kearny residents 6,000 in all (Kearny Yard, 2011).

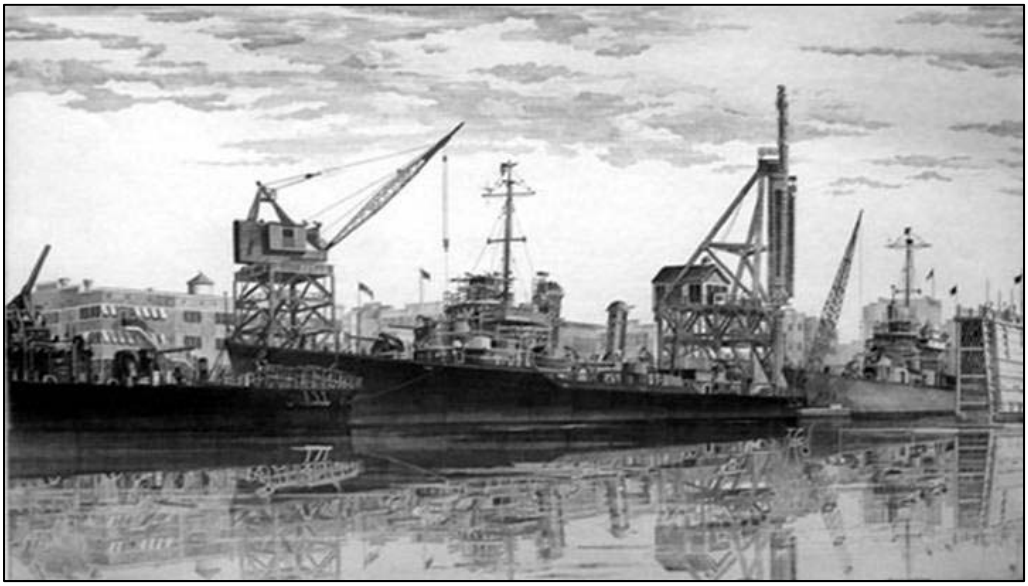


Figure 10.2 *Federal Shipbuilding and Drydock Company, South Kearny, NJ.* Etching by John Taylor Arms, 1943, commission of United States Navy, Bureau of Ships. This etching shows ships being constructed at the Federal Shipbuilding and Drydock Company. The waterway in the foreground is the Hackensack River.

Source: http: en.wikipedia.org wiki File:Federalshipbuildingkearney.jpg.

10.3 Newark Bay Waterfront Land Uses: 1800s to 2000

10.3.1 The 1800s - the Early 1900s

From the 1800s to the beginning of the 1900s, the waterfront land uses varied among the five Newark Bay municipalities (see Figure 10.3). As the present location of the Elizabeth-Port Authority Marine Terminal on Newark Bay was marsh land until the Port Authority constructed the facility in 1962, discussion of Elizabeth's waterfront land uses is confined to south of the marine terminal on the southern most stretches of the Newark Bay and the northern reaches of the Arthur Kill. As previously mentioned in Section 10.2, waterfront activities in Elizabethport began in the early 1800s with construction of docks allowing for the transference of cargo and passengers. For most of the 1880s, ferry service to New York City operated from the shores of Elizabethport (Turner Kales, 2003). Central Railroad's docks were busy transferring cargo to ferries and lighters. Ship building at the "Crescent" was a prominent industry, and the Singer Manufacturing Company was active in shipping as it received raw materials and dispatched assembled sewing machines. But industry was not the sole occupant of the Elizabeth's shorelines. The Singer Manufacturing Company also had waterfront recreational activities including a yacht club. Additionally, the Arthur Kill Rowing Association, Viking Rowing Association, Alcyone Boat Club, Elizabeth Boat Club and Triton Boat Club all operated from Elizabethport's shores (Turner, 2003). The oil refining industry arrived in 1909 when Standard Oil Company constructed a refinery along the Arthur Kill (Turner Kales, 1996).

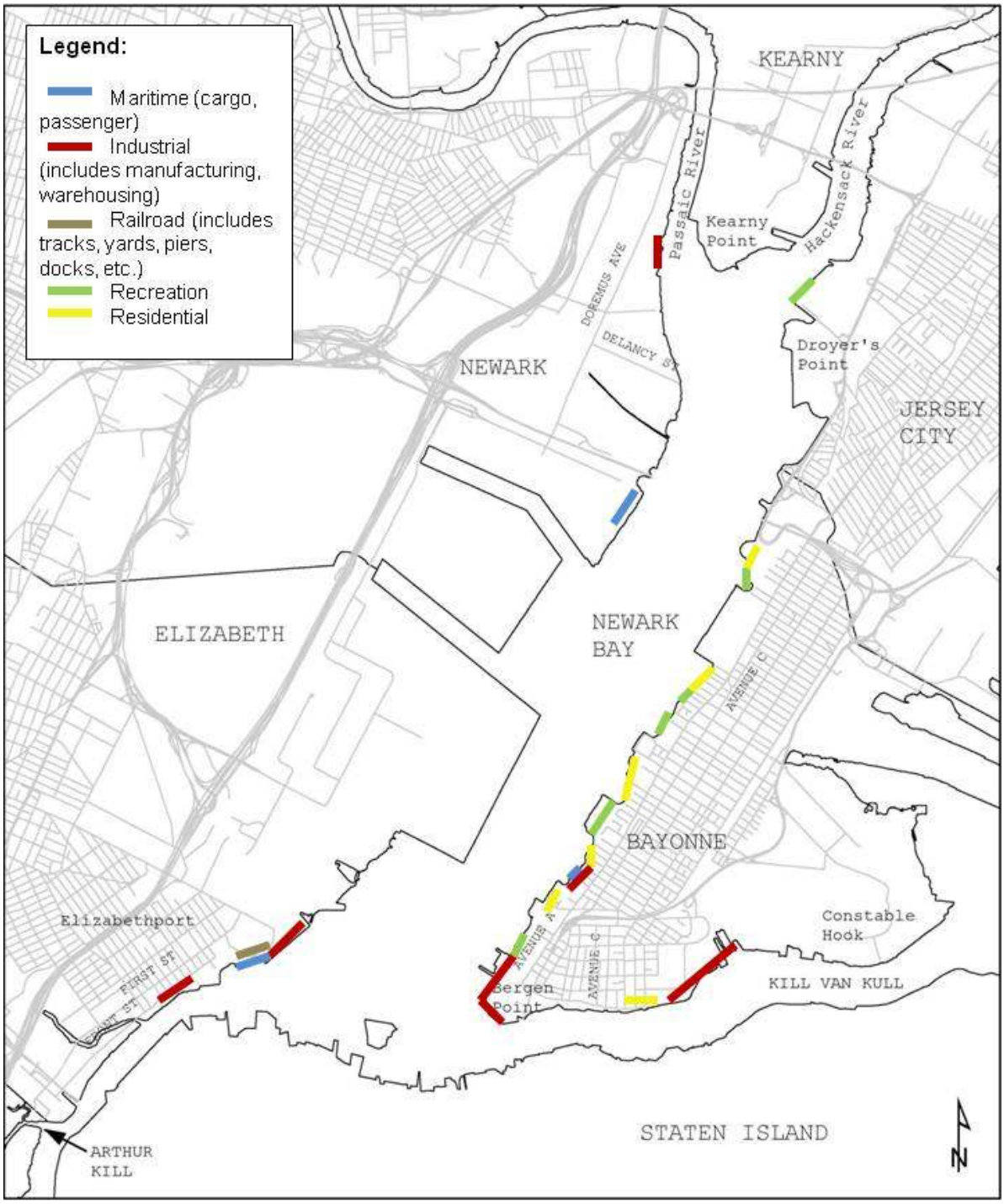


Figure 10.3 General locations of waterfront land uses, late 1800s - early 1900s, Newark Bay.

Sources: Bien □ Vermeule, 1891; E. Robinson □ Co., 1901; G.M. Hopkins Co., 1903, 1908; Sanborn Map Co., 1903.

The major waterfront occupants on the Newark Bay shoreline in Newark from the 1800s to early 1900s were the Port of Newark and the Submarine Boat Corporation, with other industrial activities (E. Robinson Co., 1901). South Kearny was mostly marshland, but in 1917 the Federal Ship Building Company was established on the eastern shore above Kearny Point (Kearny Yard, 2011). In Jersey City, activities on the Newark Bay shoreline were limited (see Figure 10.4), as the Morris Canal, constructed in 1836 effectively separated Jersey City lands from the bay (see Figure 10.5). During this time period, the only documented uses were bath houses (see Figure 10.6) located at the confluence of the Hackensack River and Newark Bay across from Kearny Point (G. M. Hopkins Co., 1908).

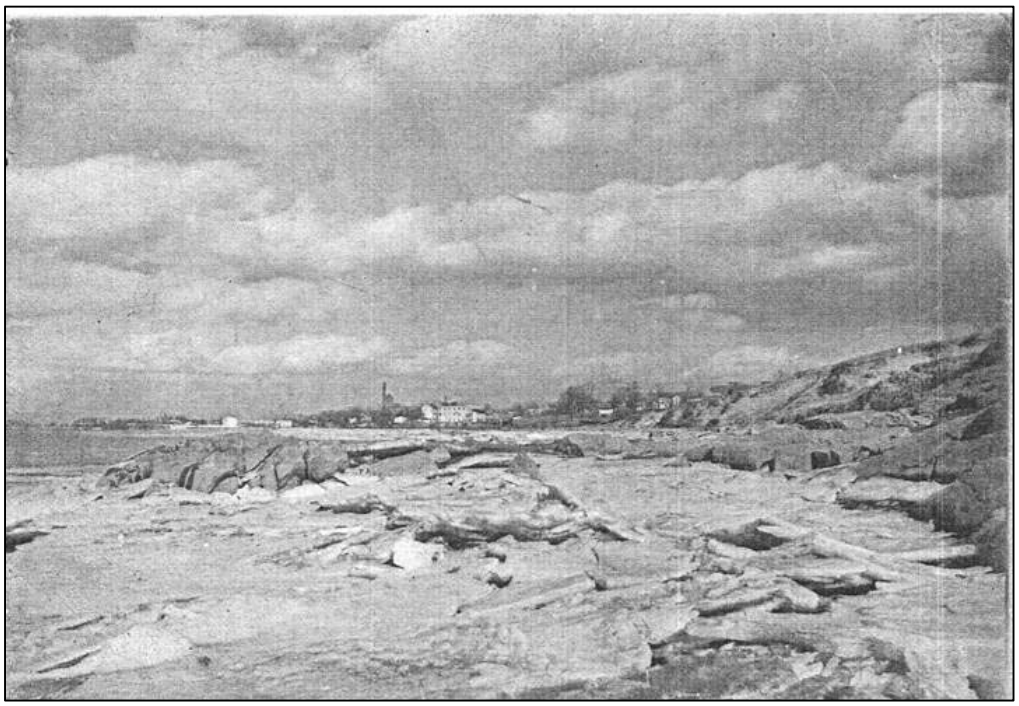


Figure 10.4 Newark Bay in Jersey City looking north toward Droyer s Point. Late 1800s. Photograph. This photo shows the rocky shores of Jersey City devoid of development on Newark Bay.

Source: Jersey City Public Library.

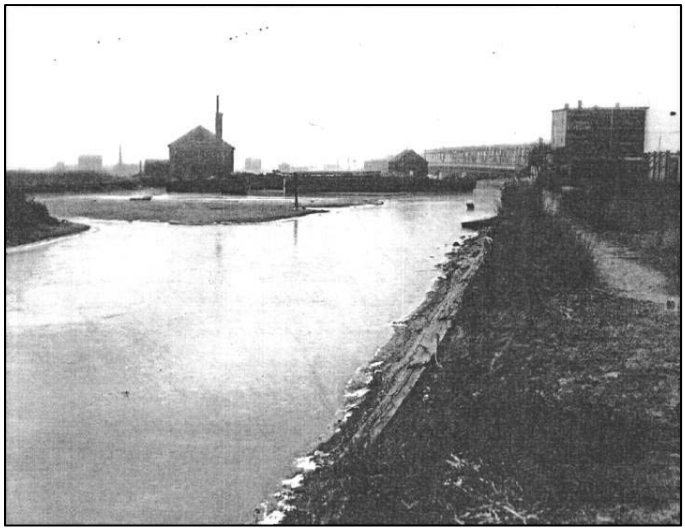


Figure 10.5 Morris Canal in Jersey City. nd. Photograph. The Morris Canal was constructed close to Jersey City s shoreline on the Newark Bay which essentially walled of the bay from the city.

Source: Jersey City Public Library.

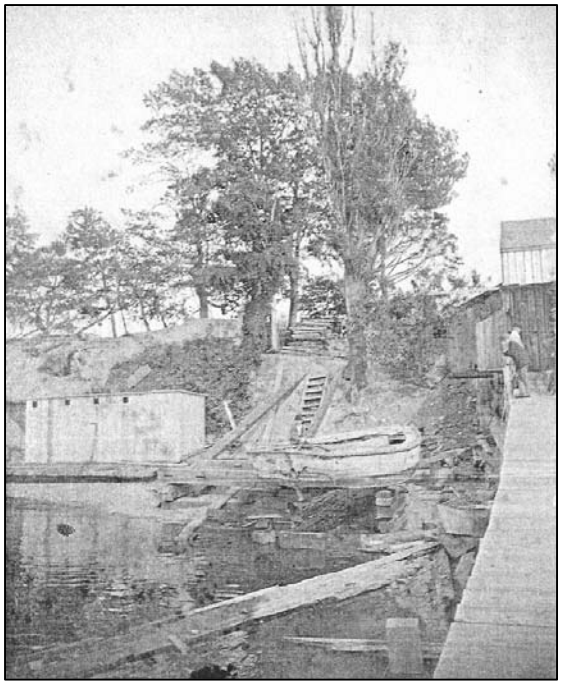


Figure 10.6 Bath houses on Newark Bay. nd. Photograph. A few bath houses were the only waterfront uses on the Newark Bay waterfront in Jersey City in the late 1800s - the early 1900s.

Source: Jersey City Public Library

The largest and most varied span of waterfront activities was along the Bayonne peninsula. Land uses on the Newark Bay waterfront and at Bergen Point were dedicated to residential and recreational uses in the early to mid-1800s. The geological formations along the west side of the northern and mid-Bayonne peninsula were not conducive to waterfront industrial activities (Lewis Herrick, 1929). Instead the estates of New York businessmen and boathouses dotted the waterfront (Robinson, nd). The western portion of the peninsula attracted many recreational clubs including the: Peninsula Yacht Club, Bayonne City Yacht Club, Essex Yacht Club, New Jersey Yacht Club, New Jersey Athletic Club, Viking Athletic Club, and Newark Bay Athletic Club. Sailboats and rowboats were prominent occupants of the Newark Bay and Kill Van Kull (Robinson, nd). Bergen Point, home to the La Tourette Hotel, athletic clubs and summer homes was referred to as the Newport on the Hudson. Fishing and oyster gathering were significant industries (Schnitzer, 1973). Beginning in the 1880s, steamboat service across Newark Bay and along the Kill van Kull was a prominent mode of transportation, with a stop in Bergen Point between Elizabeth and New York City (Robinson, nd). Industry came to the Kill Van Kull shoreline in 1866 with the Port Johnson Coal Docks, followed by the Tide Water Oil Company (1886), Standard Oil Company (1877), and Dodge Olcott Company, manufactures of essential oils and aromatic chemicals (1904) (Sinclair, 1940). The Texaco Oil Company located on Bergen Point in 1909 (Heyer, Gruel Associates, 2000).

10.3.2 The 1920s - the 1930s

The early portion of the twentieth century witnessed more development along the waterfront (see Figure 10.7). The waterfront in Elizabeth, south of the marshes, became more industrial with Singer Manufacturing Company, New Jersey Concentrating Company (chemicals), The Heidritter Lumber Company, Connelly Iron Sponge and Governor Company (oxidizing works), New York Lubricating Oil Company and American Copper Products Corporation, New Jersey Dry Dock and Transportation Company, and Central Railroad of New Jersey. In the midst of this industrial activity was a public park and recreation pier (Sanborn Map Co., 1927). The Bethlehem Ship Building Company closed in 1921.

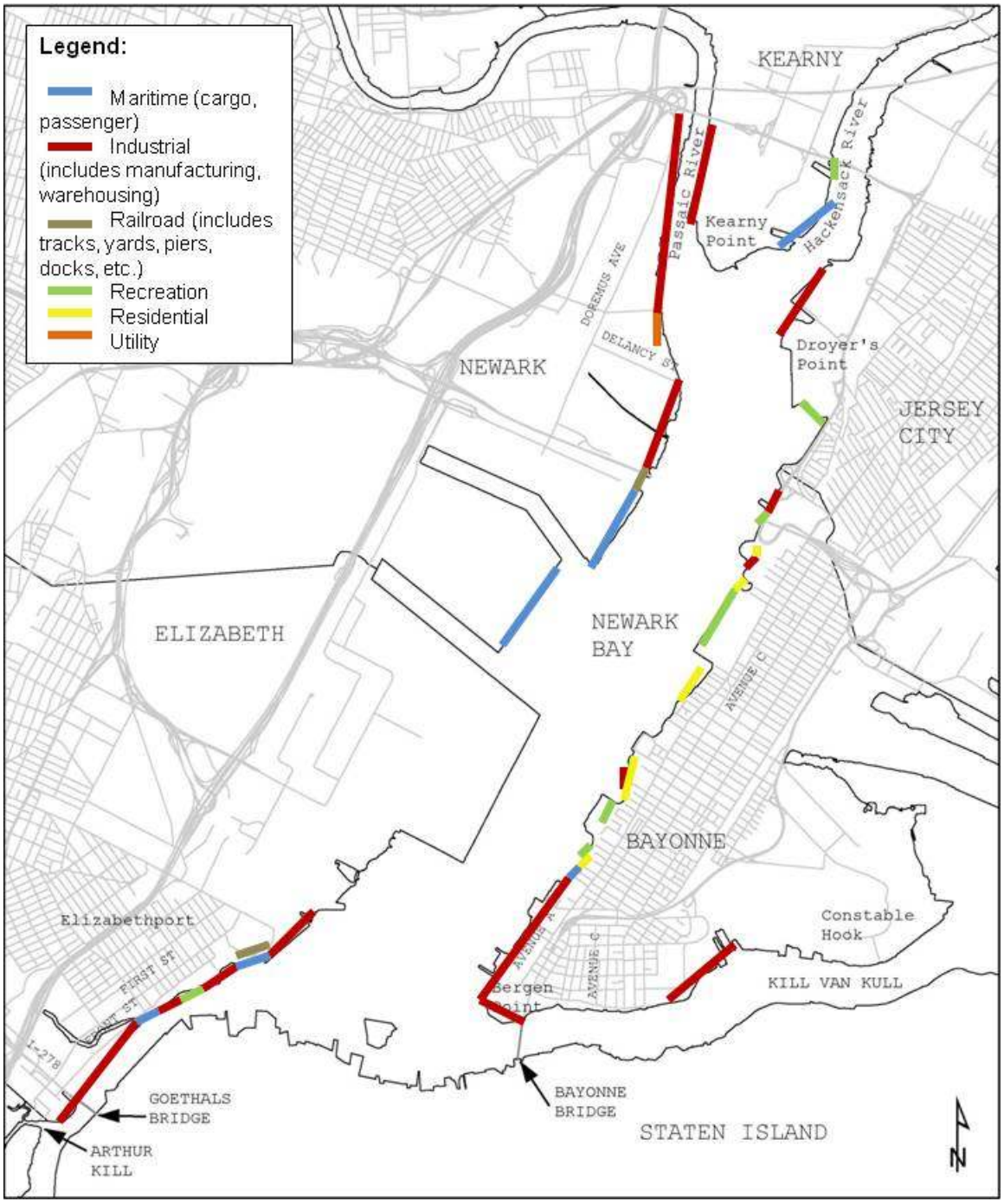


Figure 10.7 General locations of waterfront land uses, 1920s-1930s, Newark Bay.

Sources: Robinson, 1927; G.M. Hopkins Co., 1923, 1928, 1933; Sanborn Map Company, 1927.

The Newark Bay waterfront area in Newark became more industrial as well with the Mexican Petroleum Corporation, Gulf Refining Company, Balbach Smelting and Refining Company, Schultz Vegetable Oil Company, Sun Oil Company, Submarine Boat Corporation, and the Passaic Valley Sewer Pumping Station (E. Robinson Co., 1927). The Port of Newark continued to grow and the Submarine Boat Corporation continued to build seagoing vessels.

In South Kearny the Ford Motor Company, Boston Excelsior Company, and Western Electric Company located near the Federal Ship Building Company which had opened in 1917. In addition to these industrial land uses, recreational land uses (Passaic Yacht Club and the Eureka Yacht Club) located just north of Federal Ship Building on the banks of the Hackensack River (G. M. Hopkins Co., 1928 1933).

Despite the Morris Canal s separation of Jersey City from Newark Bay, some industrial and recreational development began to emerge on the waterfront. The M.W. Kellogg Company, manufacturer of high and low pressure piping materials, and the Newark Bay Shore House, Pauel s Beach Boat Club, and Roosevelt Stadium (see Figures 10.8 and 10.9) were established in the 1920s 1930s time period (G. M. Hopkins Co., 1928 1933). In the early 1920s, the Morris Canal ceased operation.

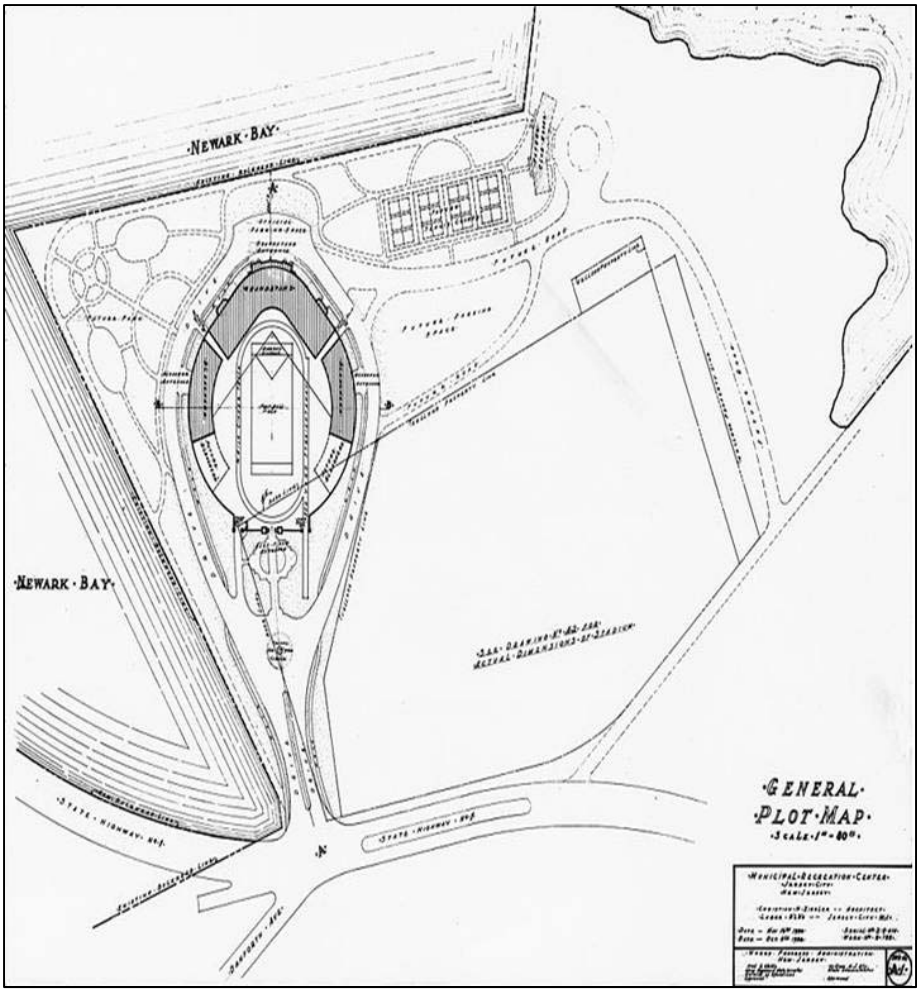


Figure 10.8 *Roosevelt Stadium, New Jersey. General plot map (DRAWING No. A-1). 1936.* This drawing shows the location of the proposed Roosevelt Stadium on Newark Bay.

Source: HABS NJ,9-JERCI,16-48, Library of Congress, http://www.loc.gov/pictures/item/NJ1029/.

Figure 10.9 *Roosevelt Stadium, New Jersey. Main entrance from west, ca. 1940*. Photograph. The stadium sat on the Newark Bay waterfront in Jersey City.

Source: HABS NJ,9-JERCI,16-41, Library of Congress, http: www.loc.gov pictures item NJ1029 .

In 1934 Bayonne s western waterfront had not changed much since 1903 in terms of its variety of residential, recreational and industrial land uses (see Figure 10.10). Parks, yacht clubs, residences and the Electric Launch Company were the primary uses from the northern to the middle sections of the western peninsula. But the Bergen Point uses changed. Recreational uses were gone, replaced by industries including the: Richfield Oil Company, Baker Castor Oil Company, Dodge Olcott, Best Foods Corporation, and Texaco Oil Company. Some residential uses existed along the Kill Van Kull eastward of Bergen Point but the industrial activities of the Standard Oil Company, Tidewater Oil Company and Port Johnston Coal Pier were the predominant waterfront uses in that area

(G. M. Hopkins Co., 1928, 1933). In the 1930s, the City of Bayonne had one of the largest concentrations of oil refineries in the world and the Standard Oil Company was the city s largest employer with 6,000 employees (History of Bayonne, 2011).

Figure 10.10 Bayonne Municipal Beach on Newark Bay opposite Port Newark. 1932. Photograph. Bathers are shown in the Newark Bay waters off the Bayonne waterfront.

Source: Newark Public Library.

10.3.3 The Mid-1900s

During the mid-1900s, some major changes occurred on portions of the Newark Bay waterfront, primarily in Elizabeth and Newark (see Figure 10.11). Port renovations and construction were the major Newark Bay activities. In 1947 the Port of New York Authority entered into a lease agreement with the City of Newark, effectively taking over the Port of Newark. The Authority dedicated 11 million for the modernization of the Port which consisted of constructing, reconstructing, repairing and rehabilitating wharves, bulkheads, warehouses, berths, train sheds and train tracks, as well as dredging the channel (Bird, 1949).

In 1958, the Port of New York Authority began expansion of Port Newark southward into the City of Elizabeth on 450 acres of marshland. This construction included digging a 9,000 foot channel, and building thousands of feet of docks and piers. At the time, the Elizabeth-Port Authority Piers was the largest port project undertaken in the United States (Levinson, 2006). By 1966, the amount of vessels calling upon Port Newark and the amount of workers at the port tripled. When the Elizabeth-Port Authority Marine Terminal was completed, over 8,000 people worked at these two ports (Cunningham, 2002).

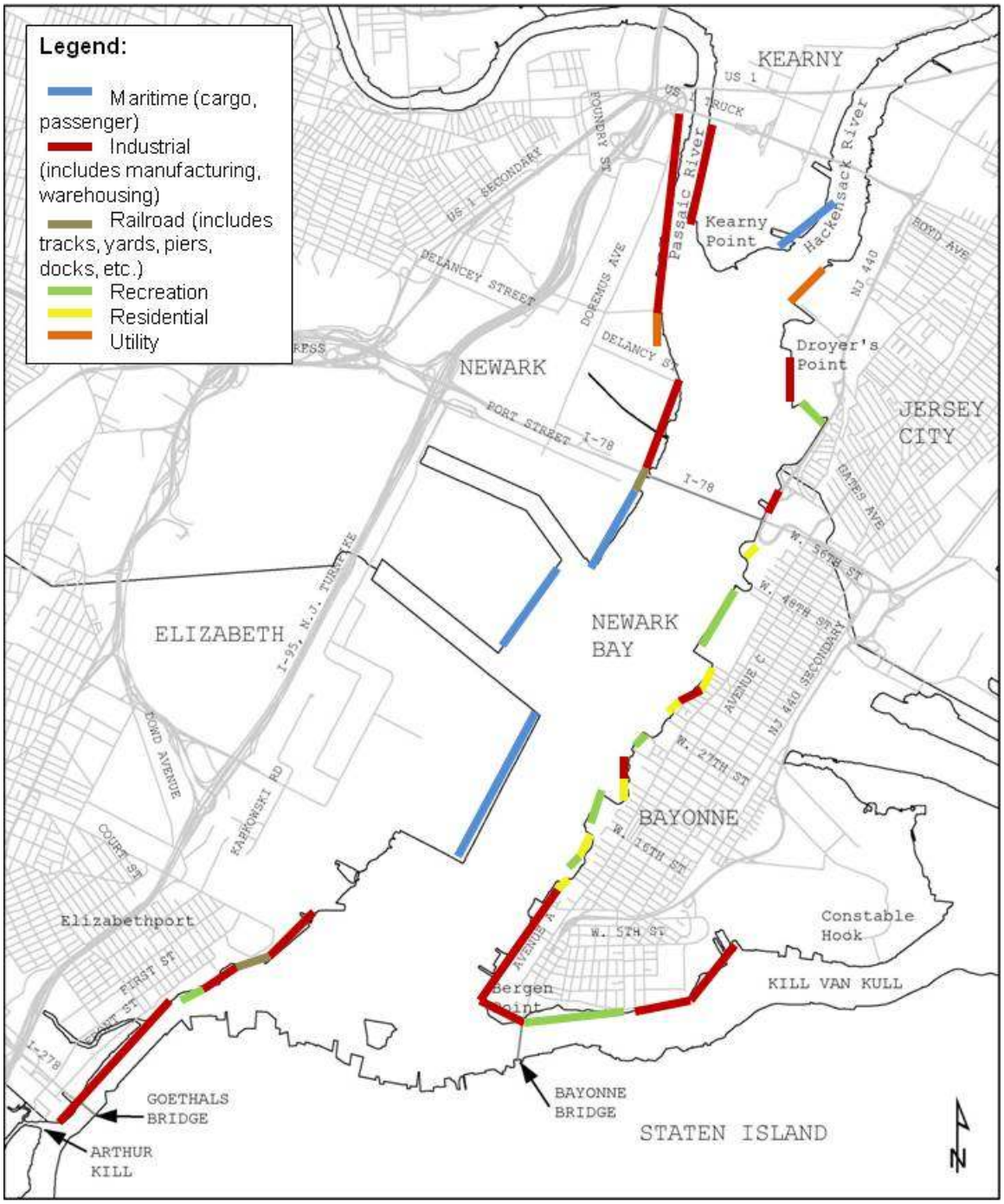


Figure 10.11 General locations of waterfront land uses, mid-1900s, Newark Bay.

Sources: Bird, 1949; Levinson, 2006; Sanborn Map Co., 1951, 1956.

Port operations in South Kearny suffered with the 1948 closing of the Federal Ship Building and Dry Dock Company. A decade later, the River Terminal Development Company was established in Federal Ship Building's former location for the purpose of dismantling ships (The Observer, 1980). Other industrial activities continued in South Kearny but the yacht clubs closed.

By the mid-1900s, the Jersey City waterfront experienced a few changes in land use. A sewage treatment plant was constructed at the site of a former chemical company; the boat houses were gone; and the Morris Canal was filled in. A roadway, which would later be named Route 440, separated the southern part of the western portion of the city from Newark Bay, just as the Morris Canal once had done (Sanborn, 1956).

Bayonne's waterfront remained a mix of residential, industrial, and recreational uses. The major change was the creation of a waterfront park on the Kill Van Kull, just east of Bergen Point (Sanborn, 1956). Industries such as the Texaco Oil Company facility were still going strong. Occupying 60 acres on Bergen Point, this deep water tanker terminal employed 300 workers and handled 15 tankers and 200 barges a month (Heyer, Gruel Associates, 2000).

10.3.4 The 1980s to 2000

Significant changes came to the waterfront in the 1980s through the 1990s. Some industries left the waterfront. Some of those sites remained vacant while others were redeveloped.

The major changes occurred in the City of Elizabeth. During the 1980s and 1990s, the waterfront south of the Elizabeth-Port Authority Marine Terminal

was rundown (C. Bollwage, personal communication, July 6, 2011). Redevelopment of the waterfront was a major planning theme of the 1980s through 1990s. From 1983 to 1992, the city designated three waterfront areas as redevelopment areas, and further amended one of those redevelopment areas in 1999 (see Figure 10.12).

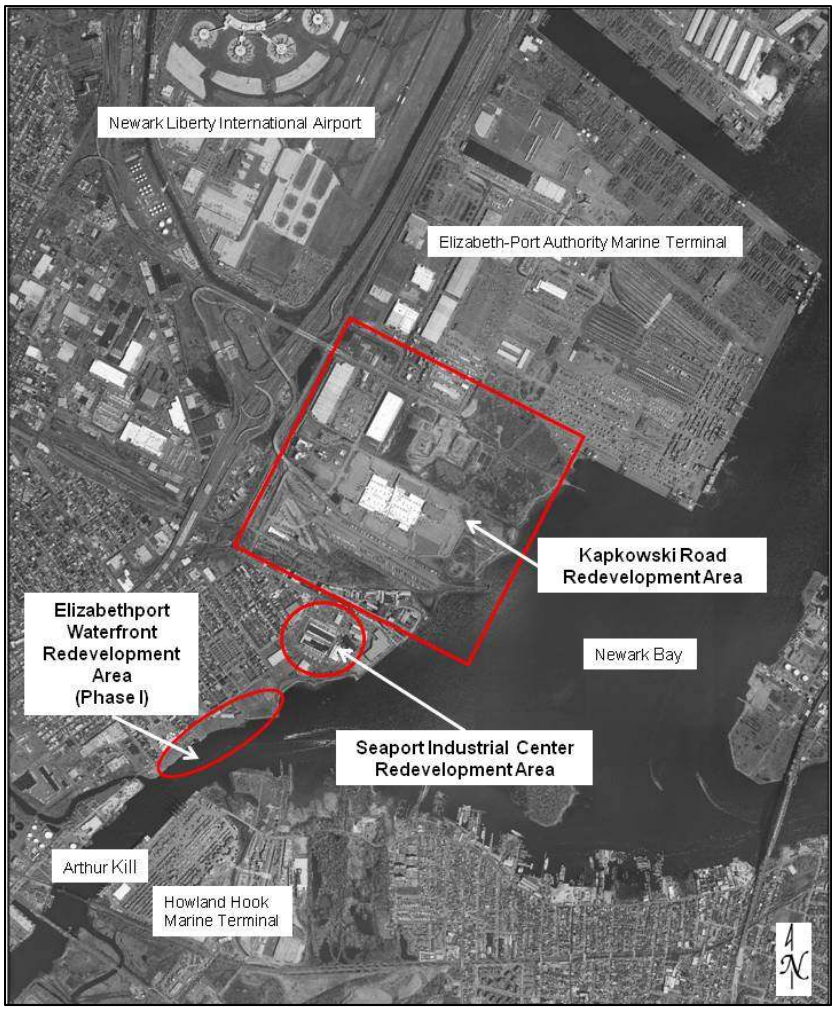


Figure 10.12 General locations of the City of Elizabeth Redevelopment Areas, 1983-1992. The redevelopment areas are outlined in red.

Sources: TM Associates, 2000; Schoor DePalma, 2005.

The Singer Manufacturing Company closed its doors in 1982. One year later, the city designated this 106-acre site as the Seaport Industrial Center Redevelopment Area (T□M Associates, 2000). In 1984, the New Jersey Economic Development Authority purchased the site, and the Elizabeth Development Corporation and the city□s development department built the Seaport Industrial Center (Public Service Electric and Gas Co., nd).

In 1988 the Elizabethport Waterfront Redevelopment Area (Phase I) was designated by the city government and included 38 acres of waterfront property formerly occupied by industrial and recreational uses. The purposes of this designation were:

> To improve the overall use and image of the waterfront. To realize the waterfront□s full economic, cultural, and historic potential. To revitalize the local neighborhood and sustain its growth. To open the city up to the sea for business and leisure use by creating a full complement of water dependent uses. To create a waterfront residential community and to strengthen the City□s economic base by attracting private investment (Schoor DePalma, 2005).

In the 1990s, a 17 acre waterfront park and boat marina were constructed in this redevelopment area (C. Bollwage, personal communication, July 6, 2011).

The Kapkowski Road Redevelopment Area was designated in 1991 and further amended in 1999 to encompass almost 800 acres of property fronting Newark Bay, just south of the Elizabeth-Port Authority Marine Terminal. Commercial industrial uses were envisioned for this area, and resulted in the construction of IKEA Elizabeth Center, hotels and the Jersey Gardens Mall in 1999 (T□M Associates, 2000).

In the 1980s 1990s time period the waterfront in Newark north of Port Newark remained industrial (see Figure 10.13). South Kearny also remained industrial but lost a major employer with Western Electric closing in 1986 (*The New York Times*, 1984). The Hudson County Correctional Center and a sewer pump station were constructed in the area (Sanborn, 1986). The River Terminal Development Company purchased the Western Electric site and built approximately 5.5 million square feet of warehouse and distribution facilities on 300 acres in South Kearny (River Terminal Development Company, 2001).

Figure 10.13 *View over Newark Bay with Newark Bay Bridge (in the very back) and Conrail Bridge connecting Newark NJ and Bayonne NJ.* 2007. Photograph.

Source: Andreas Praefcke, http: en.wikipedia.org wiki File:Newark Bay.jpg.

A major land use change occurred on the Jersey City waterfront on Droyer s Point. Roosevelt Stadium was demolished in 1985. The new uses of

the properties once occupied by chemical companies, boat houses and the stadium were a fire department school, a shopping center, a park, and Society Hill a gated residential community (Sanborn, 1986; Jersey City Past and Present, 2010).

Minor land use changes occurred on the Bayonne waterfront. However, some industries closed including the Texaco Oil Company s facility on Bergen Point (Heyer, Gruel Associates, 2000) (see Figure 10.14).

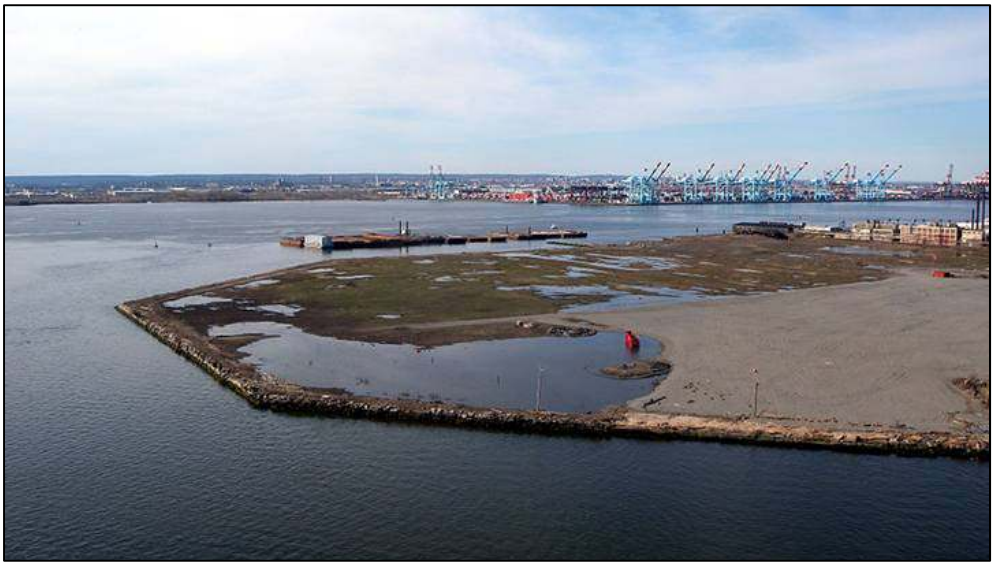


Figure 10.14 Bergen Point, Bayonne. 2010. Photograph. Elizabeth-Port Authority Marine Terminal is in the background across Newark Bay.

Source: Jim Henderson, http: en.wikipedia.org wiki File:Bergen Point barge tow jeh.JPG.

10.3.5 Comparison of Historic Newark Bay Waterfront Land Uses Amongst Municipalities

Even though Elizabeth, Newark, Kearny, Jersey City and Bayonne all lie on Newark Bay, their waterfront land uses from the 1800s through the 1990s varied and evolved differently. The Newark Bay shores of Elizabeth were mostly marsh land until the Port of New York Authority built a commercial cargo terminal in the

mid-1900s. Land uses south of those marshes on the shores of the Arthur Kill were predominantly industrial with some railroad and maritime uses, and a hint of recreational space from the 1800s to the mid-1900s. By the late 1900s, plans were underway for more commercial and recreational waterfront uses. In contrast, the Newark Bay waterfront land uses in Newark and Kearny were primarily industrial and commercial from the 1800s to the late 1900s.

Jersey City's waterfront contained a variety of uses beginning with recreation, then, industry and utility uses joined the recreational ones, and by the late 1990s, commercial, recreational and residential uses dominated the Newark Bay waterfront. In comparison, Jersey City's eastern waterfront (as discussed in Chapters 5-7) was mainly industrial and maritime and by the early 1930s included railroad tracks, yards freight houses and sheds; warehouses; locomotive repair shops; blacksmith shops; ferries; floating dry docks; a ship yard; a lumber yard; and machine shops (Hopkins, 1908, 1928, and 1933). The Erie Canal, which effectively separated Jersey City from Newark Bay on the city's western side, accelerated industrial growth on the city's eastern side as this was the location of the canal's terminus. By the 1960s, Jersey City's eastern waterfront was filled with abandoned and rusting railroad tracks, yards, and sheds; abandoned, crumbling buildings; and rotting and charred piers (Hampson, 2007; PANYNJ, 1979; Strunsky, 2005), and in the late 1980s began an over 25 year waterfront redevelopment effort.

The historic waterfront land uses on Bayonne's western waterfront differed from the four other municipal waterfronts. Bayonne's western waterfront was the

most expansive and showed a somewhat segregation of uses. The major portion of the waterfront was dedicated to recreational and residential uses, while the southern portion of Bayonne contained the majority of industrial uses. Over time, some industry migrated north of Bergen Point and appeared amongst the recreational and residential uses, but for the most part, industry spread along the southern reaches of Bayonne, and the Newark Bay waterfront land uses remained mostly recreational and residential. In comparison, Bayonne's eastern waterfront (as discussed in Chapters 5-7) had a large concentration of tank farms and petroleum refineries from the late 1800s to mid 1990s (Cunningham, 1954). The US Navy added to that industrial activity with the establishment of the Military Ocean Terminal at Bayonne (MOTBY) in 1942. When the US Navy closed MOTBY in 1995, plans for redeveloping the site with neighborhoods of residential, commercial, cultural and entertainment uses, open space, and commercial maritime facilities ensued.

Figure 10.15 (a compilation of Figures 10.3, 10.7, 10.11 and 11.1) illustrates the Newark Bay waterfront land use changes from the late 1800s to 2010, allowing for not only a view of the progression of changes within each municipality, but also a comparison of the type of uses amongst the municipalities.

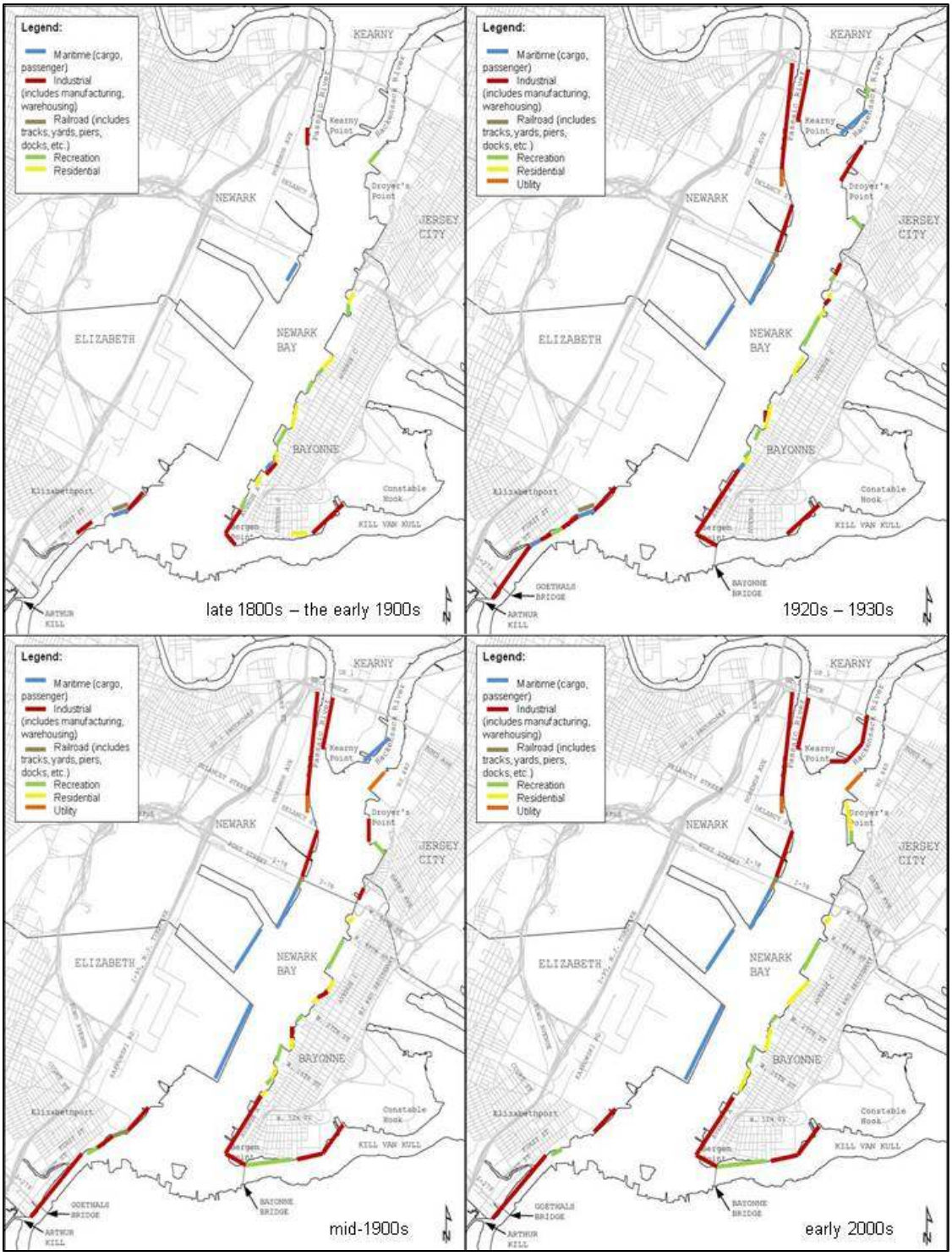


Figure 10.15 Comparison of Newark Bay Waterfront Land Uses from the late 1800s to the early 2000s.

Sources: Bien □ Vermeule, 1891; E. Robinson □ Co., 1901; G.M. Hopkins Co., 1903, 1908, 1923, 1928, 1933; Sanborn Map Co., 1903, 1927, 1951, 1956; Robinson, 1927; Bird, 1949; Levinson, 2006; Google Maps, 2011; Heyer, Gruel and Associates, PA., 2000.

CHAPTER 11

REDEVELOPING THE NEWARK BAY WATERFRONT: 2000 - 2010

The Newark Bay waterfront (including portions of the Arthur Kill and Kill Van Kull) has changed since the 1800s. The boat houses are gone, as are prominent industries including ship building. Regattas have been replaced by a steady stream of cargo ships. In the early 2000s, the Newark Bay waterfront is a mixture of residential, recreational, and industrial uses including the major commercial maritime facilities of the Port of New York and New Jersey (see Figure 11.1). The construction of new developments in the early 2000s has been minimal, due primarily to the economic downturn experienced by the country during this decade. But redevelopment planning is active in 2010.

There are two purposes of this chapter. The first is to present the waterfront redevelopment efforts that have been (since 2000) or are currently (2010) being undertaken by each of the Newark Bay municipalities. The second is to provide the foundation (in terms of land uses and redevelopment plans) for the analysis that is contained in Chapter 13 of the potential for land use conflicts between the operating port on Newark Bay and these redeveloping waterfronts.

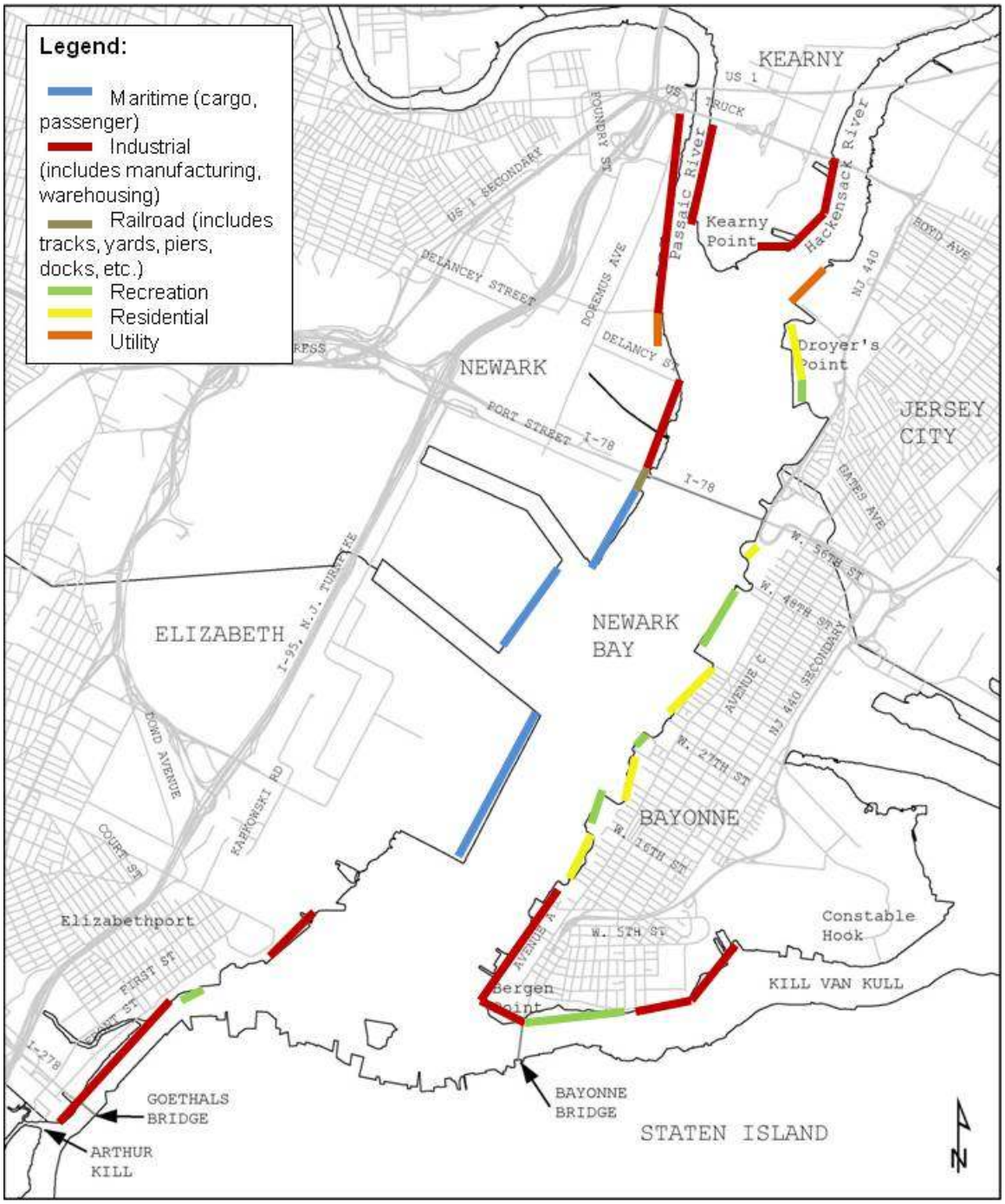


Figure 11.1 General locations of waterfront land uses, early 2000s, Newark Bay.

Sources: Google Maps, 2011; Heyer, Gruel and Associates, PA., 2000.

11.1 City of Elizabeth

Since the designation of three redevelopment areas in the 1980s and 1990s, the City of Elizabeth has designated two more: the South Front Street Redevelopment Area (2003) and the Kapkowski Road Redevelopment Area Parcel 5 (2006) (see Figure 11.2).

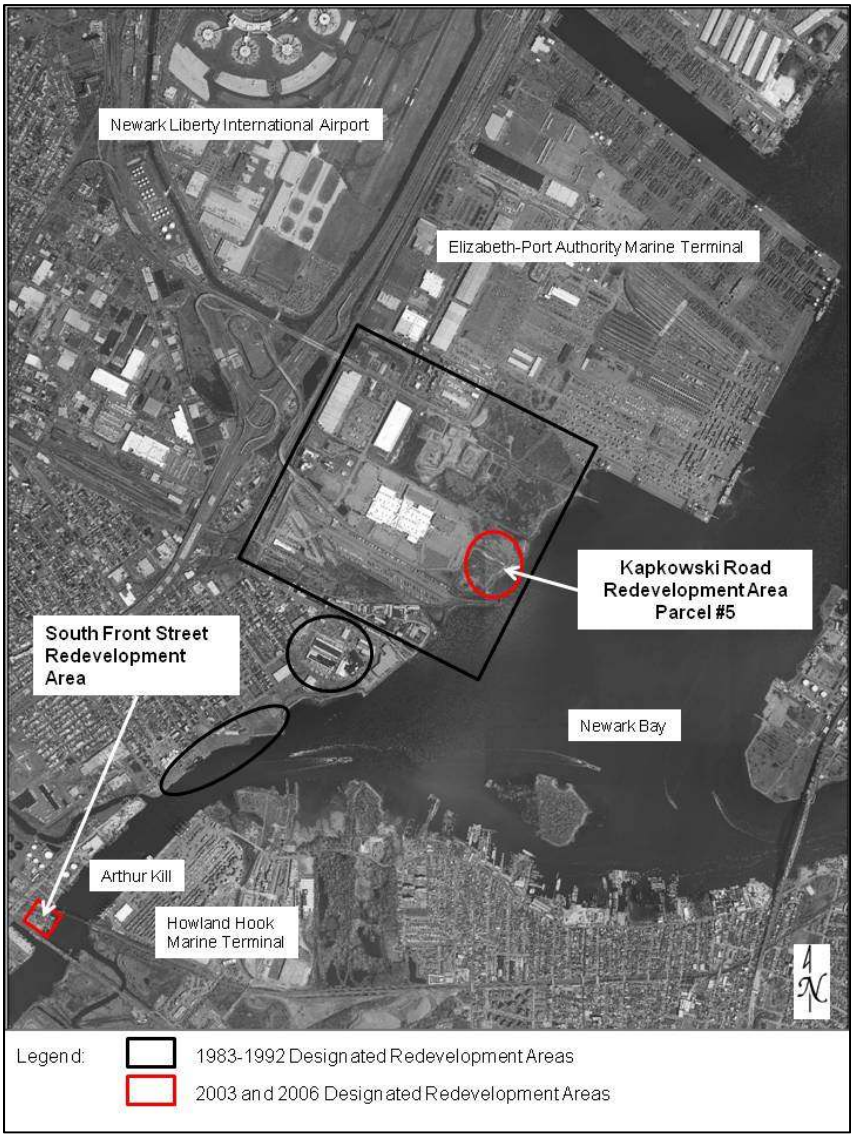


Figure 11.2 General locations of the South Front Street Redevelopment Area and the Kapkowski Road Redevelopment Area Parcel 5, City of Elizabeth. The redevelopment areas designated between 1983 and 1992 are outlined in black. The redevelopment areas designated in 2003 and 2006 are outlined in red.

Sources: City of Elizabeth, South Street Redevelopment Plan file; City of Elizabeth, Kapkowski Road Redevelopment Area file.

The City Council passed the South Front Street Redevelopment Area plan in May 2003. Permitted uses for this former industrial site include freight distribution, light manufacturing, offices, boat building, ferry service, a marina and

marine support services (City of Elizabeth, South Street Redevelopment Plan file, 2003).

In June 2006, the City Council approved a redevelopment plan for Parcel 5 of the Kapkowski Road Redevelopment Area (City of Elizabeth, Kapkowski Road Redevelopment Area file). This 30-acre former land fill which sits between the Jersey Gardens mall and Newark Bay was purchased by the Tern Group who envisioned a □2 billion mixed-use development project. The proposed uses in this massive development included 4,000 residential units, 1,200 hotel rooms, 400,000 square feet of office space and 150,000 square feet of retail space in 14 towers. A marina, ferry service to New York City, and a waterfront walkway were also proposed. In early 2008, the City Council approved the site plan and the New Jersey Department of Environmental Protection issued the required permits (Del Percio, 2008). The developer, however, went bankrupt. Mayor Bollwage lamented that Elizabeth□s □biggest development ever□, which would have generated an enormous number of jobs and considerable tax revenue is now unlikely. □All of the planets would have to align□ for it to be resurrected (C. Bollwage, personal communication, July 6, 2011).

11.2 City of Newark

The Existing Land Use Map in the city□s 2009 master plan designates all of the Newark Bay waterfront properties as Industrial and Warehouse, except for the property occupied by the Passaic Valley Sewage and Pumping Station. The master plan□s Future Land Use Plan map designates the entire Newark Bay waterfront as Heavy Industrial (City of Newark, 2009).

A major strategy identified in Shifting Forward 2025, Newark Master Plan Re-Examination Report (2009) is to Maximize Growth at Air and Sea Ports. Priorities include:

> preserve industrial land uses in all of Newark's Port Airport facilities and support areas; revise allowable and prohibited uses in all of Newark's Port Airport areas to emphasize port-dependant and high job-intensity users; retain all of Port Airport facilities and support areas in a Heavy Industrial designation; effectively develop and redevelop vacant or underutilized land (City of Newark, 2009).

To that end, the master plan designated over 150 acres of vacant and underutilized waterfront parcels as Potential Redevelopment Areas.

11.3 Town of Kearny

Stated goals in Kearny's Master Plan Reexamination Report Master Plan Revisions (Heyer, Gruel Associates, 2008) include the protection of South Kearny as an intermodal business center and the expansion and modernization of South Kearny's logistical intermodal industrial facilities that support Port Newark Elizabeth Marine Terminal. The SKI-S: South Kearny Industrial South zoning designation reflects those goals. According to Mayor Santos, South Kearny will remain industrial, although the town is fine tuning the permitted uses. At the western tip of Kearny Point, the contaminated BASF site is being remediated; a possible new use includes a warehouse distribution center (A. Santos, personal communication, June 3, 2011).

11.4 City of Jersey City

Land use planning in the Jersey City is focused primarily on residential and office development. According to the city's planning director "Real estate in Jersey City is too expensive to support industrial development, especially single story. There are not that many blue collar jobs left in the city, plus we can get higher white collar employment densities per acre" (R. Cotter, personal communication, October 29, 2010).

The city's master plan notes the following land use objectives for Jersey City's western waterfront: promoting the development of the waterfront and supporting the development of the Hackensack River Walk. The master plan denotes the majority of the western waterfront as a Waterfront Planned Development Land Use District. The purposes of this district are to:

- identify areas where the redevelopment of water oriented commercial, residential and recreational uses has occurred or has the potential to occur, and

- accurately reflect existing conditions, endorse ongoing, redevelopment activity, accommodate a broad range of new uses, promote the creative reuse of large tracts of land and to continue to provide public access to an enhanced waterfront (Wallace, Roberts & Todd, et al., 2000, p. II-53) (see Figure 11.3).

Figure 11.3 Waterfront Planned Development Land Use District, Jersey City. The district is outlined in red.

Source: Wallace, Roberts □ Todd, et al., 2000.

In 2008, the Jersey City government designated a portion of the Waterfront Planned Development Land Use District as Bayfront I (City of Jersey City, 2011). This 100-acre site presently contains an incinerator, an obsolete sewage treatment facility, a public works garage, an old office building, and industrial uses. The vision for Bayfront I is a pedestrian-friendly urban neighborhood consisting of housing (4,200 to 8,100 units), retail establishments (250,000 to 600,000 square feet), commercial space (700,000 to 1,000,000

square feet), parking (7,000 to 12,000 spaces) and parks. The residential component is envisioned to include a mixture of ownership and rental units. The desired commercial uses include general offices, financial institutions, and service businesses and professionals (such as doctors). The retail component would be consistent with "downtown" uses such as restaurants, book stores and boutiques (The City of Jersey City, 2008).

The city's 2011 zoning map further delineates the Waterfront Planned Development Land Use District. This district contains the Marine Industrial, Droyer's Point and Bayfront I Development Plan Areas (City of Jersey City, 2011) (see Figure 11.4). While the Marine Industrial Area is still a designation on the zoning map, the master plan indicates that the area was "targeted for industrial uses" but "the plan has never been implemented and is obsolete given the general decline of manufacturing and industry in the region" (Wallace, Roberts & Todd, et al., 2000, p. II-52). The Droyer's Point Development Area includes the gated community of Society Hill which was constructed in the late 1980s.

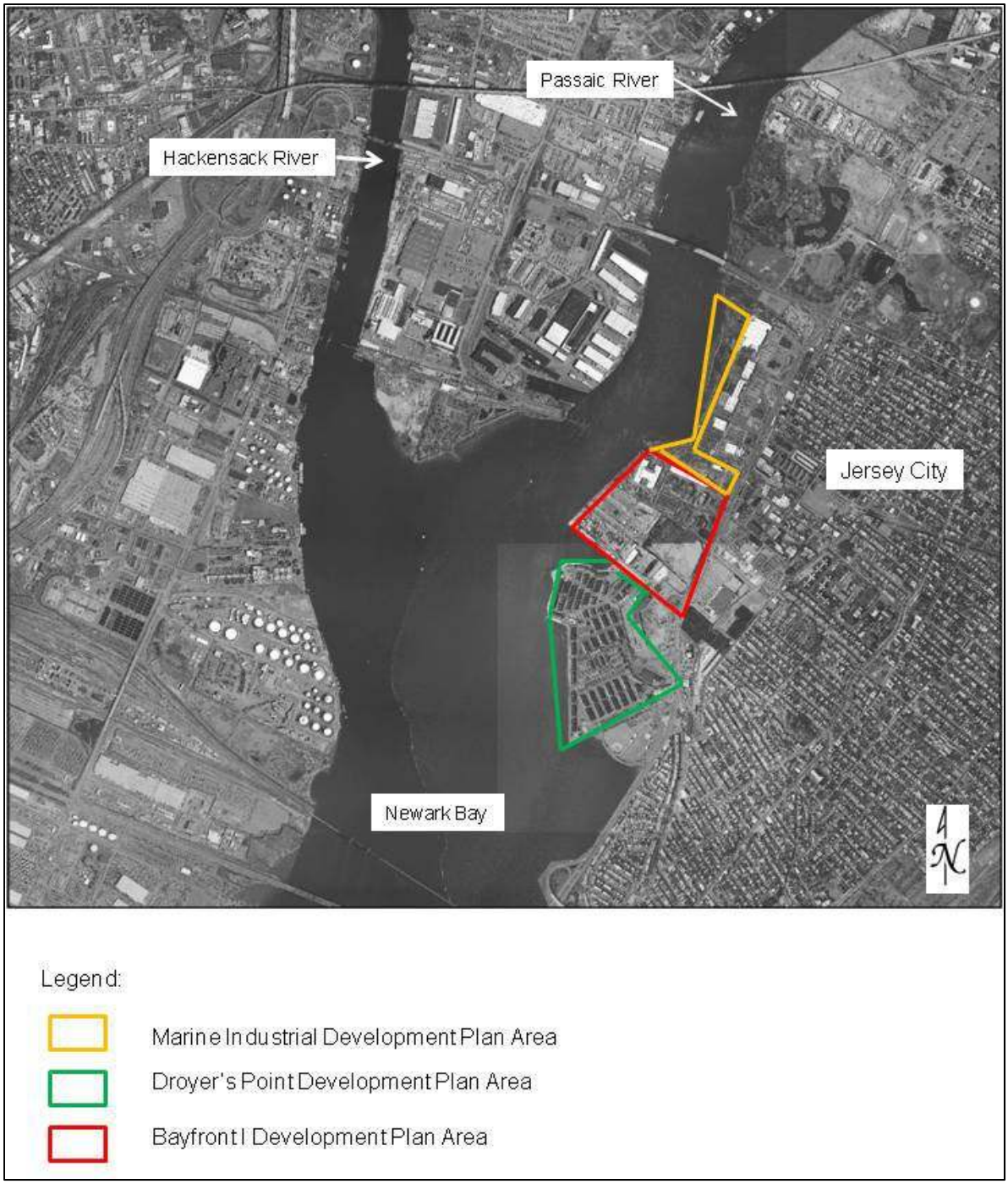


Figure 11.4 Marine Industrial, Droyer's Point and Bayfront I Development Plan Areas, Jersey City.

Source: City of Jersey City Zoning Map, 2011.

Another planned development along the waterfront on the western shores of Jersey City and Bayonne is the Hackensack RiverWalk, an eight-mile walkway on the banks of Newark Bay and the Hackensack River. The 2008 master plan reexamination report for Hudson County included the proposed walkway. The County simultaneously approved land development regulations that require developers to include a public walkway as part of their waterfront developments. The County is using funds from the New Jersey Green Acres program, the Hudson County Open Space Trust Fund, and county capital budget to acquire property and construct portions of the walkway. The Society Hill development includes its portion of the Hackensack RiverWalk (see Figure 11.5).

Figure 11.5 Hackensack RiverWalk at Society Hill. 2006. Photograph. The Hackensack RiverWalk is located between the Society Hill residential development on the left and Newark Bay on the right.

Source: http://en.wikipedia.org/wiki/File:DSC02532.JPG.

11.5 City of Bayonne

Objectives contained in the 2000 master plan for Bayonne include:

> plan for and promote the redevelopment of underutilized or vacant commercial and industrial properties; plan for and provide new community facilities to serve large-scale redevelopment areas, especially Texaco; and encourage the development of a Newark Bay Hackensack River Walkway connecting existing parks and open space along Newark Bay (Heyer, Gruel Associates, 2000, pp. I-6-9).

This was echoed by the city planner who indicated that the planning emphasis in the Newark Bay area includes maintaining park and open spaces and converting former industrial properties to mixed-use and residential uses (J. Fussa, personal communication, September 3, 2010).

The master plan indicates an expansive area on Bergen Point as a Waterfront Development District (see Figure 11.6). This Waterfront Development District encompasses the site formerly occupied by the Texaco Oil Company. Permitted residential and commercial uses would include one- and two-family dwellings, multi-family housing, retail space, offices, restaurants, theaters, recreational uses and marinas. Suitable uses for an existing pier include recreational use or a limited commercial use such as a restaurant. According to the master plan, The Waterfront Development Districts location on Newark Bay is a unique site amenity that should be a focal point of future redevelopment (Heyer, Gruel Associates, 2000, II-18).

Figure 11.6 Waterfront Development District, Bayonne. The district is outlined in red.

Source: Heyer, Gruel Associates, 2000.

Since the creation of the master plan in 2000, Bayonne has approved or is in the process (in 2011) of approving three redevelopment plans along the Newark Bay waterfront: Texaco Redevelopment Plan (2004), Best Foods Redevelopment Plan (pending), and The Cove Redevelopment Plan (pending) (J. Fussa, personal communications, 2011) (see Figure 11.7).

Figure 11.7 Bayonne Redevelopment Plans. Four redevelopment plans are outlined in red.

Source: Bayonne City Planning Department, 2011.

The adopted Texaco Redevelopment Plan encompasses over 70 acres (13 properties) of a former industrial site owned by Chevron Texaco. The redevelopment plan calls for a mixed-use waterfront development with over 1,000 residential units, up to 250,000 square feet of commercial space, and 15 to

20 acres of parks□open space. The designated redeveloper is The Kaplan Companies; the project is active but on hold pending site remediation, land use approvals and improvement in real estate market conditions. It is unknown how the implementation of this redevelopment plan will be affected by the Bayonne Bridge reconstruction project, as this redevelopment area is adjacent to where the bridge touches down in the city (J. Fussa, personal communications, June 24, 2011).

By the Fall of 2011, the City of Bayonne is expected to adopt the Best Foods Redevelopment Plan. The goal of this plan is to promote the creation of a light industrial business or commerce park for multiple users on this 35-acre industrial site formerly occupied by Best Foods (J. Fussa, personal communications, June 24, 2011).

In the summer of 2011, the Bayonne government was in discussions with the property owner regarding a redevelopment agreement of a seven acre former commercially used site fronting Newark Bay between West 19th and West 21st Street. The Cove Redevelopment Plan calls for a multi-family residential development with 125 to 150 residential units and a waterfront walkway connecting the 16th Street Park to an isolated waterfront walkway at the Thomas J. Zito Senior Citizen Building to the north near West 23rd Street (J. Fussa, personal communications, June 24, 2011).

A redevelopment project that was underway on a former commercial waterfront site is the Baker Residential Bay Harbor Club (see Figure 11.7). The project involves a multi-family residential development with 158 units overlooking

Newark Bay and the city's recently completed Richard Rutkowski Park at the western terminus of West 53rd and West 54th Streets. Construction started in 2008 but has stopped since 2009 because of real estate market conditions. No restart date has been announced (J. Fussa, personal communications, June 24, 2011).

Bayonne is also actively planning for the Hackensack RiverWalk that would ultimately run along Bayonne's entire western waterfront from the Bayonne Bridge to the Richard Rutkowski Park connecting existing parks and residential neighborhoods (J. Fussa, personal communications, June 24, 2011).

11.6 Comparison of Newark Bay Redevelopment Plans with Previous Land Uses

The Newark Bay waterfront properties in Newark and Kearny have historically been industrial. Neither municipality plans to redevelop or encourage redevelopment of those waterfronts for nonindustrial uses. Both municipal master plans and government representatives interviewed for this research recognize the economic importance of the port and the need for industrial land uses that support the port operations. Thus, their waterfront properties will remain industrial.

The cities of Elizabeth, Jersey City and Bayonne, on the other hand, have been pursuing a variety of redevelopment opportunities. Just as the historic land uses differed amongst these municipalities, visions for future land uses also differ. The historic waterfront land uses in Elizabeth have included industry, commercial operations, maritime facilities and recreation. Redevelopment plans

also include these uses. In Jersey City, historic land uses on Newark Bay have included recreation, industry, utility and housing. One proposed redevelopment plan which appears to be moving forward in Jersey City includes a new, mixed-use, urban neighborhood, while an area designated as Marine Industrial has shown no activity. Bayonne had historically a mixture of land uses. The city government□s major redevelopment plans target the historically industrial Bergen Point area where the desired land uses are no longer solely industrial but residential, commercial, recreational and possibly light industrial.

PART IV: CONTEMPORARY PORT-CITY RELATIONSHIPS ON NEWARK BAY

CHAPTER 12

THE RELATIONSHIP BETWEEN THE FIVE NEWARK BAY MUNICIPALITIES AND THE PORT IN 2010

According to Hoyle, "the port-city evolution model adopts a chronological approach to port-city inter-relationships and, in the final stage, evokes the renewed collaboration we see today between port and city as waterfront zones are revitalized" (Hoyle, 2000c, pp.402-403). The purposes of this section is to first determine the current relationship (as of early 2011) each municipality has with the port, and then to determine if "renewed collaboration" exists between the port and these cities. As previously mentioned, the Port-city Evolution Model is based on spatial and functional aspects. Yet this case study demonstrates that the port-city relationship is multifaceted, and that in addition to spatial and functional aspects it is also characterized by economic, political and societal aspects.

Before further discussing the port-city relationships in this case study, two important clarifications must be made. First, the author chose to isolate most aspects of the port-city relationships for ease in discussion. In reality, the relational aspects are intertwined. For instance, many political decisions are made based on economic considerations. While jobs are discussed below under the heading of societal aspects, they are also by their very nature, economic. And truck traffic, while clearly a functional aspect, is discussed under societal aspects because such traffic affects the communities through which it traverses.

The second clarification is a clear distinction that is made by some municipalities between their relationship with the port facility and their relationship with the Port Authority. This becomes apparent under the political and economic aspects of the port-city relationship discussion below. While this case study focuses on port facilities, it is also important to note that the Port Authority of New York and New Jersey owns or operates several other facilities in four of the five municipalities, including: the Goethals Bridge in Elizabeth; Newark Liberty International Airport in Newark; the Holland Tunnel, Port Jersey and the Greenville Yards in Jersey City; the Bayonne Bridge and a portion of the former MOTBY site in Bayonne; and the PATH rail system in Newark and Jersey City (see Figure 12.1). The PATH system traverses Kearny, but has no stations in the town.

The relationships between each municipality and the port vary. In some relational aspects there are commonalities among the municipalities, while in other relational aspects are diametrically opposite between municipalities.

12.1 Spatial and Functional Aspects of the Port-city Relationship

As spatial and functional aspects of the port-city relationship are intricately linked, the discussion of these aspects pertinent to this case study will focus on those two together. These aspects include: land and facilities for the port, cargo handling, and port-related businesses.

Even though the Port Authority of New York and New Jersey views Port Newark and Elizabeth-Port Authority Marine Terminal as one integrated facility,

they are located in two different cities (see Figure 12.1). Additionally, the land holding arrangements differ for each facility. Port Newark is located on land the Port Authority of New York and New Jersey leases from the City of Newark. While the Elizabeth-Port Authority Marine Terminal is located on land that the Port Authority owns. Waterfront land to support expansion of the port complex exists to the north in Newark, but not to the south in Elizabeth.

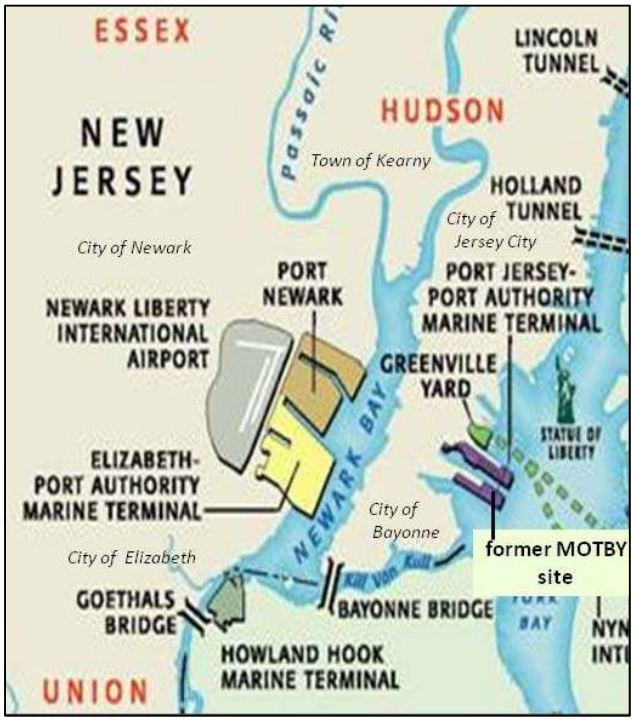


Figure 12.1 The Port Authority of New York and New Jersey port facilities in Newark, Elizabeth, Jersey City and Bayonne. This map shows Port Newark, Elizabeth-Port Authority Marine Terminal, Port Jersey-Port Authority Marine Terminal and the former MOTBY site. The map also shows other Port Authority owned and operated facilities including the Goethals Bridge, Newark-Liberty International Airport, Howland Hook Marine Terminal, Greenville Yards, Bayonne Bridge, Holland Tunnel and Lincoln Tunnel.

Source: Based on a map prepared by Guenter Vollath, Port Authority of New York and New Jersey.

In terms of land for port-support businesses beyond the Port Newark and Elizabeth-Port Authority Marine Terminal footprint, the Port Authority owns and operates the Industrial Park at Elizabeth. Other land in both cities is used by private firms for port-support related businesses such as the Northport Industrial Center and the Port Elizabeth Business Park. The City of Newark is actively planning for and pursuing port-related businesses to locate in the section of the East Ward closest to Port Newark (A. Amador, personal communication, July 8, 2011). However, a concern expressed by Mayor Bollwage of Elizabeth involves the Port Authority's purchasing powers. "We are always leery about the Port Authority being big brother and taking over property. We don't want the Port Authority to take private land because the city looses revenue. Creating parking lots for Newark Airport is a no-no in my city" (C. Bollwage, personal communication, July 6, 2011).

No Port Authority of New York and New Jersey port facilities are in the Kearny town limits, but land in South Kearny is occupied by port-related businesses, such as the River Terminal Development's South Kearny Industrial Complex, a 5.5 million square foot warehouse and distribution center. Mayor Santos strongly supports use of South Kearny for port-related businesses (A. Santos, personal communication, June 3, 2011).

While the Port Newark-Elizabeth-Port Authority Marine Terminal complex is not in Jersey City or Bayonne, it is important to note that both Jersey City and Bayonne have Port Authority port facilities, albeit on the Hudson River-Upper New York Bay side of their land mass (Port Jersey-Port Authority Marine

Terminal and a portion of the former MOTBY site, see Figure 12.1). With respect to land that can support port-related businesses, the Bayonne City Planner points to opportunities in the vicinity of the former MOTBY site on the eastern portion of the city. On the Newark Bay side of Bayonne, many of the former industrial uses are abandoned or underutilized. These properties will either be converted to light industrial, or as with the Texaco site, converted to mixed-use residential and commercial development (J. Fussa, personal communication, September 3, 2010).

In Jersey City, port-related land uses beyond the Port Jersey footprint are primarily located in the southeastern section of the city in the vicinity of this active port. The Newark Bay side of Jersey City is generally not conducive to port-related businesses, especially those requiring freight handling, because large expanses of land area are not available (R. Cotter, personal communication, October 29, 2010).

Representatives from all five municipalities agree on two critical spatial/functional concerns: (1) the need to address the Bayonne Bridge's inadequate air draft, and (2) the need to improve the freight handling roadway system. Recognition that the Bayonne Bridge's deficient vertical clearance will negatively impact the *region's* economy is universal, but concern for the potential negative impact on the *local* economy as a result of not raising the bridge was also voiced. "The Bayonne Bridge needs to be raised. If not, it will not only negatively impact the port it will negatively impact the City of Elizabeth. It will result in the loss of businesses and jobs" (C. Bollwage, personal communication

July 6, 2011). Improvement of the roadway system that carries freight is viewed as essential not only to relieve the area's serious traffic congestion but also to sustain existing port-related businesses and encourage new ones. This is especially vital for South Kearny which has a strong dependency on the port (A. Santos, personal communication, June 3, 2011).

12.2 Economic Aspects of the Port-city Relationship

The economic importance of the Port of New York and New Jersey to the region and the state of New Jersey cannot be overstated. According to the Metropolitan Waterfront Alliance (2008–2009), maritime businesses in the New York–New Jersey region generate more jobs than the financial industry, and are on par with the education, health care and tourism industries.

In 2008, the New York Shipping Association sponsored an assessment of the economic impact of the Port of New York and New Jersey (A. Strauss-Wieder, Inc. & Jacobs, 2009). "Port Industry", as defined in this assessment included: "cargo and passenger transportation providers, financial and insurance institutions, security firms, information services, freight forwarders, customhouse brokers, wholesalers and warehouses, and governmental agencies" (A. Strauss-Wieder, Inc. & Jacobs, 2009, p. 2). In 2008, this industry provided 269,990 total jobs in the study region (12 New York counties, 15 New Jersey counties, 4 Pennsylvania counties), over $11.2 billion in personal income, almost $36.1 billion in business income and an excess of $5 billion in federal, state and local tax revenues. The majority of these economic impacts are felt in New Jersey with 75 percent of the jobs, 79 percent of the personal income, 80 percent of the

business income and 78 percent of the tax revenues. While the report did not provide exact numbers, a graphic depiction of where port industry workers live shows large concentrations in Union, Essex and Hudson counties (the counties of the five Newark Bay municipalities).

The economic aspects of the relationship between the five Newark Bay municipalities and the port are discussed below under two headings: taxes and payments in lieu of taxes, and support of the local business economy.

12.2.1 Taxes and Payments in Lieu of Taxes

The tax-exempt status of the Port Authority has been a contentious issue dating back almost to the very beginning of the agency. Three years after the Port Authority was created in 1921, the cities of Hoboken, Jersey City, Bayonne and Newark argued that the Port of New York Authority should pay local taxes on its facilities (including rail lines, piers and terminals) as they constituted business operations and not essential government functions. The Port of New York Authority argued that all its functions were that of a government, not a private business, and therefore should be exempt from taxation. The Port of New York Authority was willing, however, to make some payments in lieu of taxes (PILOTs). Legislation was passed authorizing the Port of New York Authority to enter into a voluntary agreement whereby it would provide annual payments to any county, city or town in connection with any marine or inland property owned by the bi-state agency. The payment could not, however, exceed the sum last paid as taxes upon such property prior to the purchase by the Port Authority

(Doig, 2001, p. 201). This long standing legislation has been a bone of contention with many municipalities that contain Port Authority facilities.

In Elizabeth, the "loss of taxes" on over 2,000 acres of Port Authority owned land is the source of much resentment for Mayor Bollwage. As the Port Authority owns this land occupied by the Elizabeth-Port Authority Marine Terminal, it does not pay taxes to the city. A 1931 charter, however, permits the City to collect payment in lieu of taxes at a rate of $63,000 per year. According to Mayor Bollwage, "If the city could collect taxes on this land, the city may not have the need for a tax rate. The citizens would not have a tax burden" (C. Bollwage, personal communication, July 6, 2011). The Mayor claims that the property, if under private ownership, would generate over $15 million in annual taxes. The city has managed to enter into other financial arrangements with the Port Authority. In the 1980s, the Port Authority agreed to provide the city with $3 million per year which allowed the city to construct a new fire station. (The city provides fire services and supplements Port Authority police at the Elizabeth-Port Authority Marine Terminal.) The Port Authority also pays the city $480,000 per year (until 2030) to lease city-owned property for an employee parking lot near New Jersey Turnpike Interchange 13A, and a $1 million per year parking tax for a parking lot at Newark Liberty International Airport (C. Bollwage, personal communication, July 6, 2011).

The situation in Newark differs from Elizabeth in terms of monetary compensation but resentment is a common theme. In the late 1990s-early 2000s the Newark city government was embroiled in a dispute with the Port Authority

because it felt the compensation received under its lease agreement for Newark Liberty International Airport and Port Newark was insufficient. According to a Port Authority press release (October 31, 2002), the city filed suit and in 2002 the dispute was settled and included the following provisions:

- Extension of the lease until 2065. The previous lease expires in 2031.
- A combined payment for the airport and the seaport of □100 million in the first year, and annual combined lease payments of approximately □65 million in years two through five. In addition, the City will receive □12.5 million per year until 2036 that will be used to capitalize projects in the City and □3 million per year in supplemental rent.
- Escalation of rent payments every five years in proportion to the growth in airport and seaport revenues. Payments will be at least □65 million annually.
- The City of Newark will discontinue major elements of its pending arbitration and litigation.

Thus, even though the Newark city government owns the land occupied by Port Newark and for years received payment-in-lieu-of-taxes, the city government had to sue the Port Authority to receive what the city government felt was just compensation.

Fairness (or the lack thereof) is a common term used by Jersey City Mayor Healy when he speaks of the economic relationship the city government has with the Port Authority. According to the mayor, of the more than 30 properties the Port Authority owns in Jersey City, the city government receives payment-in-lieu-of-taxes on only two: about □800,000 per year for the marine terminal and over □80,000 per year for PATH facilities. Mayor Healy argues that □This is not a fair market rate or fair payment. This is a gross underpayment for the land they occupy in Jersey City and for all the impacts to the city (i.e. trucks).

In all fairness, we should be receiving a much, much larger payment. The mayor indicated that his negotiations with the Port Authority over the past seven years have yielded very little, including a 4 million contribution towards funding a recreation area. The Mayor has no confidence in anything forthcoming from the Port Authority in fairness to the people of Jersey City. The mayor indicated that the city is examining the legitimacy of this economic relationship and warned It is coming to a head (J. Healy, personal communication, August 6, 2011).

With the City of Bayonne s sale of a portion of the former MOTBY property to the Port Authority, Bayonne received a substantial financial gain but lost a tax-revenue-generating property. The city sold a 35-acre property and 100 underwater acres for 135 million as well as a permanent roadway easement for site access for 100 million (Strunsky, 2010a). Payment will be made over 24 years with a substantial amount being paid during the first five years. This almost immediate infusion of capital helped the city close a budget gap, stabilized the tax rate, and will fund needed infrastructure and service improvements (J. Fussa, personal communication, September 3, 2011).

12.2.2 Support of the Local Port-support Business Economy

While the Mayor of Elizabeth is critical of the amount of payment-in-lieu-of-taxes received for the Elizabeth-Port Authority Marine Terminal, he values the port s role in attracting new businesses to the city. There is no doubt that the port is an economic engine that drives jobs in the City of Elizabeth (C. Bollwage, personal communication, July 6, 2011). In addition to port-related businesses such as warehouses and distribution centers and trucking companies, the Mayor

indicates that port workers and visitors support city businesses such as restaurants, hotels and the Jersey Gardens Mall. But, despite this economic engine, what is good for the Port of New York and New Jersey is not always good for the City of Elizabeth. When the Port Authority took over Howland Hook (which is located in Staten Island just several hundred feet across the Arthur Kill from Elizabeth- see Figure 12.2) it took some businesses away from the city. The Port Authority said it would increase the market share, but it cost Elizabeth (C. Bollwage, personal communication July 6, 2011).

Figure 12.2 City of Elizabeth Waterfront, the Arthur Kill, and the Howland Hook Marine Terminal (from left to right). 2006. Photograph. Elizabeth-Port Authority Marine Terminal is in the background.

Source: http://en.wikipedia.org/wiki/File:EnteringElizabeth0614.JPG.

The Newark city government also recognizes the economic influence of the port. According to Councilman Amador, "The focus of Port Newark as an

economic engine is of primary focus now for the city. We don't have to reinvent anything; the port business is there for the taking. We need to take advantage of this opportunity. By harnessing the economic engine that is Port Newark, we can attract well respected companies like Wakefern or Goya whose products are transported through the port (A. Amador, personal communication, July 8, 2011).

Kearny's Mayor Santos also acknowledges the link between the port and business opportunities. He reported that the business focus in South Kearny has changed from manufacturing to port and freight support facilities such as warehouses and distribution centers. To the extent these properties are used, businesses are operational, and property values go up, the town reaps tax benefits (A. Santos, personal communication, June 3, 2011). As reported in the town's master plan, the local government adopted a Strategic Vision Plan in 2007. One planning initiative contained in the plan is the expansion and modernization of logistical intermodal industrial facilities supporting Port Newark Elizabeth Marine Terminal located in South Kearny. Two of the plan's goals are maintaining South Kearny as an intermodal business center and capitalizing on redevelopment efforts around Port Newark including investing in the regional transportation network (Heyer, Gruel Associates, 2008).

Jersey City's master plan acknowledges the port as a competitive advantage and economic development asset but states the need for improvements to the roadway and rail systems serving the port area to sustain this economic edge and encourages the development of land side facilities to

help the port grow and to generate port-related development (Wallace Roberts Todd, et al., 2000).

The Port Authority s development of a portion of the former MOTBY site as a commercial maritime complex will not only increase direct employment opportunities, it will also attract port related businesses to Bayonne, according to the Bayonne City Planner (J. Fussa, personal communication, September 3, 2010). With the increase in the Port Authority s commercial maritime activities in Bayonne, the city is hoping for a resurgence of port-related businesses especially in the Constable Hook area. The city government will plan for and change land use designations to further accommodate light industrial and logistics uses to support the new port operations. We want to capture value added development such as insurance, brokerage, customs and other professional services related to international trade and the maritime complex (J. Fussa, personal communication, September 3, 2010).

When speaking of the need to increase the vertical clearance of the Bayonne Bridge, most people point to its function of allowing passage of cargo ships. The Bayonne City Planner ties the Bayonne Bridge to the city s economic vitality. The Bayonne Bridge is a critical economic development tool for the city. Its very existence gives Bayonne a competitive advantage. Not only is the bridge a regional transportation link, it also reduces the city s isolation (as it is a peninsula) and connects port activities in Staten Island, Bayonne and Jersey City. By virtue of the Bayonne Bridge s location in Bayonne, it makes the city an

attractive and convenient location for commercial and light industrial uses that rely heavily on transportation services.

Another economic benefit to the cities of Elizabeth and Jersey City and the Town of Kearny is the Port Authority s Foreign Trade Zone (FTZ). FTZ 49, established in 1979 is one of the largest FTZs in the country. A foreign-trade zone (FTZ) is a designated geographical area located within the United States in or near a Customs port of entry, but considered to be outside U.S. Customs territory. Because their merchandise is considered international commerce, companies that locate their operations in a FTZ save on duties and taxes (Foreign Trade Zone 49, 2011). In addition to the Port Newark Elizabeth-Port Authority Marine Terminal complex and the Port Jersey-Port Authority Marine Terminal Greenville Yard, FTZ 49 includes the Port Authority owned Industrial Park at Elizabeth (125 acres), and the privately owned Northport Industrial Center (16.6 acres) and Port Elizabeth Business Park (73 acres), both in the City of Elizabeth, and South Kearny Industrial Area (407 acres) in Kearny (Foreign Trade Zone 49, 2011).

12.3 Political Aspects of the Port-city Relationship

12.3.1 Port Authority of New York and New Jersey

The Port of New York Authority was created as an agency of professionals who would focus on cooperative planning and whose decisions would be made on the basis of technical analysis, not political favors. While its creation was a result of political wrangling between the states of New York and New Jersey, the Port

Authority was structured to be removed from politics. It is a unique creature; it is neither a government nor a private corporation. It has the ability to raise its own revenue (through tolls, fees and bonds) so it is not dependent upon taxes and not directly controlled by voters (Doig, 2001). As its geographic mission transcends local, county and state borders and the best interest of the port region is its focus, it is shielded from politics, in theory.

While an Executive Director and a professional staff execute the daily operations of the Port Authority, the Authority's commissioners are appointed by the governors of New York and New Jersey (six each) and are confirmed by the respective state Senates. The Board of Commissioners elects its Chairman and Vice Chairman, and selects the Executive Director. In an observation of the Port Authority's political nature, Barney Warf noted:

> The obedience paid by the PA to the governors of New York and New Jersey States illustrates that its authority is likewise limited from "above". The particular limitation on its power arises mainly from the mutual suspicion and jealousy with which each state regards each other. To combat such fears, the PA must distribute its expenditures equally on either side of the Hudson River, or at least maintain the fiction that it does (Wharf, 1988, p. 296).

Wharf noted that in addition to this constraint imposed by the higher government (state governors) above, the Port Authority can also experience pressures from below in the form of local resistance. When the Port of New York Authority was created, local governments viewed it as a "threat to local democratic control and a danger to local economic viability" (Doig, 2001, p. 78). It is commonly viewed as "an arrogant shadow government" (Warf, 1988, p.295). With this "double boundness" (Warf, 1988, p. 296) of higher government

pressure and local resistance, the Authority must, therefore, operate somewhere in the middle. This juxtaposition has created political tensions.

12.3.2 Local Government-Port Authority Relationships

Four of the five local government representatives interviewed made a clear distinction between their municipality's relationship with the port and its relationship with the Port Authority. The political aspects of the port-city relationship come into play in the relationship between the local government and the Port Authority. [As there are no facilities owned or operated by the Port Authority in Kearny, interaction between the Port Authority and the town's government is minimal (A. Santos, personal communication, June 3, 2011)].

12.3.2.1 City of Elizabeth. Elizabeth's local government-Port Authority relationship is adversarial. According to Mayor Bollwage, the Port Authority informs the local government of its plans (for a project) and it is up to the local government to "cooperate or make hay." "The Port Authority never calls me and says, hey what do you think? Never happens!" (C. Bollwage, personal communication, July 6, 2011). When there is dialogue between the two entities, it is usually because the local government has forced the Port Authority to negotiate. For example, over the course of several weeks in 2001, the city government, with the support of the Union County government, brought truck traffic entering the Elizabeth-Port Authority Marine Terminal to a standstill. In protest of what the local government saw as the Port Authority's unfair compensation to the City of Elizabeth, city and county police were stationed along a major truck route issuing tickets for all possible violations. The Governor

of New Jersey had to intervene, bringing the local government and the Port Authority to negotiations regarding the Port Authority's financing of emergency services, infrastructure improvements, and parking lots (Runge, 2001; C. Bollwage, personal communication, July 6, 2011).

12.3.2.2 City of Newark. Councilman Amador reported a similar relationship between Newark's local government and the Port Authority. "There is a relationship whenever the Port Authority needs something from the city. They deal with the city government when they feel it is necessary for their gain" (A. Amador, personal communication, July 8, 2011).

The Newark city government has had to resort to legal action in order to bring the Port Authority to the table for negotiating financial arrangements. The city filed suit to increase compensation for its Port Newark/Newark Liberty International Airport lease agreement, which was settled in 2002. "Newark is a stepson that they deal with when they are forced to do so. I wish the Port Authority would come to the table on their own instead of being forced to. It is a matter of respect" (A. Amador, personal communication, July 8, 2011).

12.3.2.3 City of Jersey City. Over Mayor Healy's almost seven year term, the city government's relationship with the Port Authority has vacillated between cooperative and adversarial, "depending on who's running the operation. Right now, the relationship with the Port Authority is very weak" (J. Healy, personal communication, August 16, 2011). If the Mayor wishes to discuss an issue with the Port Authority's upper management, "they will give us a meeting, but it takes three to four months" for the meeting to take place. According to Mayor Healy,

the Port Authority is not forthcoming regarding any plans within the city limits. "We find out late" (J. Healy, personal communication, August 16, 2011). For example, the city government did not learn of the Port Authority's 2010 purchase of Global Terminal until the day the Port Authority's Board of Directors was to meet and approve of the purchase. Even then, the Mayor was informed, not by the Port Authority, but by the State of New Jersey's Governor's office which called and instructed the city government to immediately release a press statement in favor of the sale (J. Healy, personal communication, August 16, 2011).

12.3.2.4 City of Bayonne. According to the City Planner for Bayonne, in the past, the city had a cordial relationship with the Port Authority by virtue of its shared interests in the Bayonne Bridge. However, over the last ten years the political relationship has been "tenuous" due to their competing interest in the redevelopment of the former MOTBY site. The Port Authority was interested in securing the former MOTBY site for development as a container port facility. The Bayonne Local Redevelopment Authority attempted to sell the commercial maritime district portion of former MOTBY site to the Port Authority but the City Council and community objected to the Port Authority's involvement. "They didn't want to sell the crown jewel of Bayonne's redevelopment to the Port Authority (especially at the Port Authority's low offering price). The Port Authority is the 800 pound gorilla, as the entity is not locally controlled, exempt from local zoning with independent financial resources. They control their own destiny" (J. Fussa, personal communication, September 3, 2010). The City Council voided the sale

agreement in 2006. Instead, the Bayonne Local Redevelopment Authority sold the property to a higher bidder, so the Port Authority filed suit against the city and the redevelopment authority. From 2006 to 2008, the Bayonne-Port Authority relationship was marred by "severe hostility; the relationship ruptured" (J. Fussa, personal communication, September 3, 2010).

Bayonne's current administration has tried to improve the relationship with the Port Authority because "not only is the Port Authority not going away, they will expand their presence in the city" (J. Fussa, personal communication, September 3, 2010). The raising of the Bayonne Bridge is a sensitive issue for the local government and the current administration wants to ensure that an amicable Bayonne-Port Authority relationship will result in maximum benefits and minimal impacts to the community. Regular meetings are held between the local government and Port Authority staff to discuss Bayonne Bridge alternatives, issues, and needs.

12.4 Societal Aspects of the Port-city Relationship

Societal aspects of the port-city relationship pertain to the life and welfare of residents within the port city as affected by the port. Based on interviews with representatives of the five Newark Bay municipalities, jobs and "quality of life" issues pertaining to port activities are a concern among the elected officials and residents. The primary "quality of life issues" mentioned are air quality, truck traffic, and mitigation of community impacts.

12.4.1 Jobs

The need for jobs for city residents is a major concern of the Newark Bay municipalities. In years past, the maritime industry was a major employer in all five municipalities. But major employers such as the Federal Shipbuilding Dry Dock Company, Bethlehem Ship Building Corporation, and the Military Ocean Terminal at Bayonne are long gone. However, port related jobs do exist and employers include the Port Authority of New York and New Jersey, tenants of the port, port-related businesses and the International Longshoreman s Association (ILA), the largest union of maritime workers in North America. Port facilities of the Port of New York and New Jersey employ 3,321 active ILA workers, who are highly paid blue collar workers earning base salaries of 20 to 31 per hour (New York Shipping Association, 2010, pp. 8 and 10).

Newark Councilman Amador noted that jobs are the most important asset of Port Newark (A. Amador, personal communication, July 8, 2011). One of the biggest frustrations for Council Amador is that there is not a big connection between the job opportunities on the port itself and the residents of the City of Newark. There was at one time. About 15 to 20 years ago, there were many Ironbound (a section of Newark) residents who worked on the port. When these people moved out of the city, there was no replacement process of the loss of city jobs. We lost that connection. Those links have since been cut (A. Amador, personal communication, July 8, 2011). The Councilman noted an agreement the city has with Continental Airlines at Newark Liberty International Airport that

stipulates that a certain number of employees must be Newark residents. He favors having a similar agreement with port tenants.

A major goal listed in Shifting Forward 2025, Newark Master Plan Re-Examination Report (2009) is jobs for residents with the following strategies given to achieve that goal:

- Maximize Growth at Air and Sea Ports: increase the percentage of port and port-related jobs going to Newark residents from 22 percent to 33 percent (resulting in app. 12,000 jobs). Develop high job-density uses on over 800 acres of potential redevelopment parcels in Newark's Port and Port Support Areas; encourage new models for industrial business districts within the Port and Port Support Areas, including modern production, warehouse and distribution centers.

- Improve Freight Mobility: contribute to improvements in regional waterborne and rail freight infrastructure to promote more job-intensive uses and employment opportunities for Newark residents.

The Bayonne City Planner lamented the loss of societal ties between a maritime presence and jobs that catered to maritime activities. When MOTBY was an active military facility there was a substantial interaction between Bayonne businesses and the MOTBY employees and service men and women moving through the port. While MOTBY had a base military store (known as a PX), many goods including stationary, toiletries, electronics and clothing were purchased from local establishments. A registry of local apartments for short stays was kept for service men and women needing housing. The loss of MOTBY as a military base was devastating to local businesses. With Royal Caribbean International establishing its New York home port terminal on the former MOTBY peninsula in 2004, some local businesses have begun to flourish. Royal Caribbean International uses local sources for catering, laundry services,

stationary products, and security. The crew is bussed from the port facility to local stores and many of the 300,000 annual cruise line guests shop in Bayonne prior to boarding and after departing the ships. The city government hopes that the Port Authority's planned facilities on a portion of the former MOTBY site will have a similar positive impact on local businesses (J. Fussa, personal communication, September 3, 2010).

12.4.2 Air Quality

Representatives from the cities of Elizabeth, Newark and Bayonne mentioned the port activities' negative air quality impacts as a major concern. The Bayonne City Planner explained that Port Newark-Elizabeth-Port Authority Marine Terminal is a major emitter of particulate pollution and, by virtue of their position downwind of the port, the cities of Bayonne and Jersey City are the "epicenter of that pollution" (J. Fussa, personal communication, September 3, 2010).

Recognizing the negative air quality impacts resulting from port operations (contributed by ocean-going vessels, cargo handling equipment, heavy-duty diesel vehicles and railroad locomotives), in 2009 the Port Authority completed its first ever Clean Air Strategy, a 10-year strategy to reduce commercial maritime related air quality impacts and greenhouse gas emissions. The Port Authority coordinated with federal and state entities (including the US Environmental Protection Agency and the New Jersey Department of Environmental Protection), advocacy groups (including New York Shipping Association), and the cities of Newark, Elizabeth, Jersey City and Bayonne to develop a range of voluntary actions to be taken to achieve cleaner air. The strategy was endorsed by the

four municipalities. One action included is the Port Authority's Regional Truck Replacement Program which provides grants and financing to eligible truck owners for the replacement of older trucks with newer vehicles equipped with EPA emissions-compliant engines (PANYNJ, 2009).

12.4.3 Truck Traffic

The municipal representatives interviewed indicated that truck traffic on roads that traverse their communities is a major concern. They anticipate, with concern, the expected increase in freight movement once expansion of the Panama Canal is completed. Freeholder Peter Palmer, the Chair of the North Jersey Transportation Planning Authority's (NJTPA) Freight Initiatives Committee echoed this concern. While trucks are vitally important to the operation of the port complex, how they effectively navigate the port region and where they park is a serious concern, not only for the port industry but for the adjacent communities (P. Palmer, personal communication, June 14, 2011). While trucks travel on Interstate routes and New Jersey highways, they also travel on local roads, creating traffic congestion. Port related trucks form the greatest percentage of total traffic on the connector roads adjacent to the terminals. By 2020, congestion on most area roadways around the Port Newark-Elizabeth-Port Authority Marine Terminal complex is expected to severely impact travel times (Halcrow, et al., 2005, p. 20). In addition to the negative impacts of truck traffic on roads, truck parking is a community concern. A lack of truck parking exists in the study area, leading truckers to pull over on the side of local roads, thereby causing community concern. A study commissioned by the NJTPA identified

available property for truck parking, however, land owners and municipalities balked at the proposed land use, citing the potential for higher and better uses of such properties (P. Palmer, personal communication, June 14, 2011).

12.4.4 Mitigation of Negative Community Impacts

A major concern expressed by the City of Newark is the Port Authority's commitment to the community to mitigate negative impacts. The city government views the Port Authority as a major business in the city and, as such, it should contribute to the community's quality of life. Councilman Amador (2011) contends that "the Ironbound has been viewed for a long time by entities such as the Port Authority as a place that does not deserve to get respect from these entities. There is a notion that you (the Port Authority) can do anything you want in terms of the impact on the lives of the residents without any repercussions at all. That is the mentality that exists." The Councilman cited various Port Authority actions that have impacted the Ironbound Community: truck traffic and parking from the Port Newark-Elizabeth-Port Authority Marine Terminal complex, noise and vibration from airplanes taking off from and landing at Newark Liberty International Airport, and air pollution from a Port Authority incinerator. The Councilman claims that the Port Authority is "not a responsible neighbor" and is "an autonomous body that has no connections with the community, the residents or the quality of life." The Councilman further stated that instead of voluntarily taking an active role in the city and contributing to community improvements that would mitigate the negative impacts of its business, the Port Authority has to be pressured by the city government. For example, the City of Newark took legal

action against the Port Authority over negative air quality impacts resulting from an incinerator. In a settlement, the Port Authority committed funds for the construction of a recreational facility (as well as to make upgrades to the incinerator). "That was the first and only commitment they made to the community" (A. Amador, personal communication, July 8, 2011).

Mayor Healy of Jersey City echoes Councilman Amador, noting that the Port Authority is "not the best corporate citizen" (J. Healy, personal communication, August 16, 2011). The Mayor noted that Goldman Sachs, in addition to paying substantial PILOTS, also contributes to the community with mentoring programs for high school students, financial support of community activities, and volunteer efforts. "There is a connection between these corporations and the community. We don't get that with the Port Authority" (J. Healy, personal communication, August 16, 2011).

12.5 Analysis of the Port Authority-city Relationship

As indicated in the Contemporary Regional Port System stage (see Figure 12.3) of the Port of New York and New Jersey Port-city Evolution Model (presented in Chapter 9) and as discussed in the preceding sections of this chapter, there are several types of port-city relationships evident in the Newark Bay study area. Elizabeth, Newark, Jersey City and Bayonne all have port-city and Port Authority-city relationships. Each of these relationships is unique. This section provides a discussion of several relationship theories and then applies those theories to the port-city and Port Authority-city relationships evident in the Newark Bay study area.

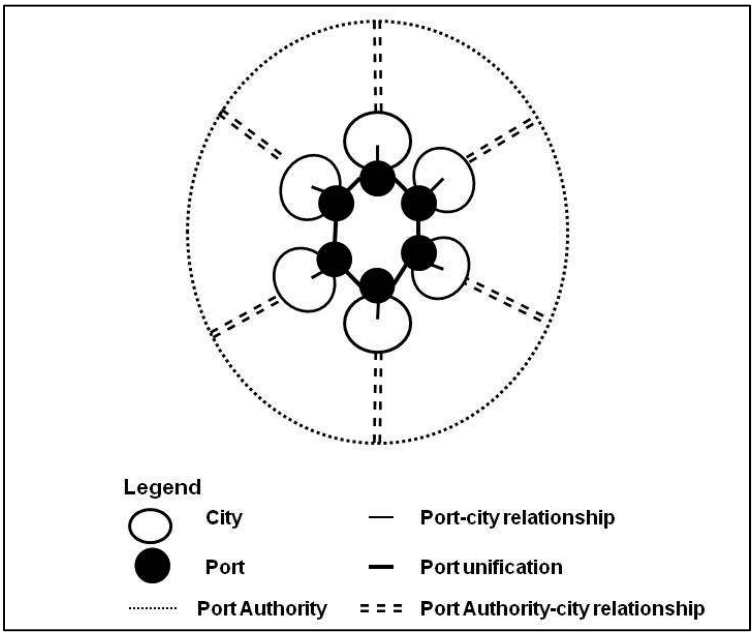


Figure 12.3 Contemporary Regional Port System. This figure shows the most recent stage in the Port of New York and New Jersey Port-city Evolution Model, indicating that there are several port facilities contained within the Port of New York and New Jersey, as well as several types of relationships.

Bates and Bacon (1972) define the community as a "complex social system with unique structural properties that enable the management of conflict and competition" (p. 373). Within this system are two distinct kinds of relationships. The reciprocal relationship is characterized by two actors working to accomplish a common goal. Conversely, in the conjunctive relationship two actors perform functions toward achieving separate goals. "In conjunctive relationships, the parties involved are in conflict in regard to goals" (Bates and Bacon, 1972, p. 374).

According to social exchange theory, relationships are formed and maintained as long as the parties perceive the benefits derived from the

relationship as positive. The theory of relational cohesion stipulates that "relations with more equal power-dependence and greater mutual dependence produce more frequent exchange between pairs of actors in a network and this leads to relational commitment" (Lawler, Thye & Yoon, 2008, p. 523-524). The causal chain in this theory is as follows: "(1) more frequent exchange generates more positive feelings; (2) more positive feelings generate a perception of the exchange relation as a unifying (cohesive) force; and (3) greater perceived cohesion promotes commitment behavior" (Lawler, Thye & Yoon, 2008, p. 524). Lawler, Thye & Yoon (2008) define various types of social exchange. Productive exchange is similar to the aforementioned reciprocal relationship in that all groups provide and receive benefits from the association. Cooperation, shared responsibility, and a common goal are characteristic of a productive exchange. Negotiated exchange involves offers, counteroffers and mutual concessions resulting in two groups providing benefits to one another. It is only after this bargaining process when a sense of shared responsibility is realized (Lawler, Thye & Yoon, 2008).

With those theories in mind, viewing the Newark Bay area as a community with the Port Authority and the five municipal governments as the actors, the various relationships can be viewed as reciprocal and conjunctive and the exchanges between the actors can be characterized as productive and negotiated. Based on research conducted for this dissertation, several conclusions can be drawn. The first is that the municipalities view the "port" as two distinct entities: the physical commercial maritime structure and operations

(i.e., port footprint, freight movement) and the Port Authority of New York and New Jersey.

The second conclusion is that each municipality has its own unique relationship with the port and the Port Authority. By virtue of the differing missions of the Port Authority and the municipalities, it can be concluded that, as a whole, the goals of the Port Authority and the goals of the municipalities are different. The Port Authority's mission is to:

> enhance the region's competitiveness and prosperity by providing transportation services that efficiently move people and goods within the region and facilitate access to the nation and the world (PANYNJ, 2006, August, p.3)

The mission of each of the five Newark Bay municipalities includes providing essential services to their respective citizens including education, housing, recreation, transportation, and emergency response. In essence, the Port Authority's perspective is regional, national and global, while the municipal focus is local. As these actors are performing different functions toward achieving different goals, it is not surprising that their relationships are conjunctive.

However, closer examination leads to a third conclusion: these unique port-city relationships vary according to their relational aspects (i.e., political, economic), and the prevailing issues at hand (i.e., the Bayonne Bridge vertical clearance). Therefore these specific port-city relationships cannot be captured with one label. For instance, in 2010, economic aspects of the Port Authority-City of Elizabeth relationship can be labeled a conjunctive relationship with negotiated exchange. As the Elizabeth City government views the 1931 monetary allocation in lieu of taxes inadequate, it actively attempts to leverage

the Port Authority's plans for infrastructure improvements (i.e., rehabilitation of the Goethals Bridge) or property acquisition (i.e., airport parking lot) into a monetary gain for the city (see Figure 12.4).

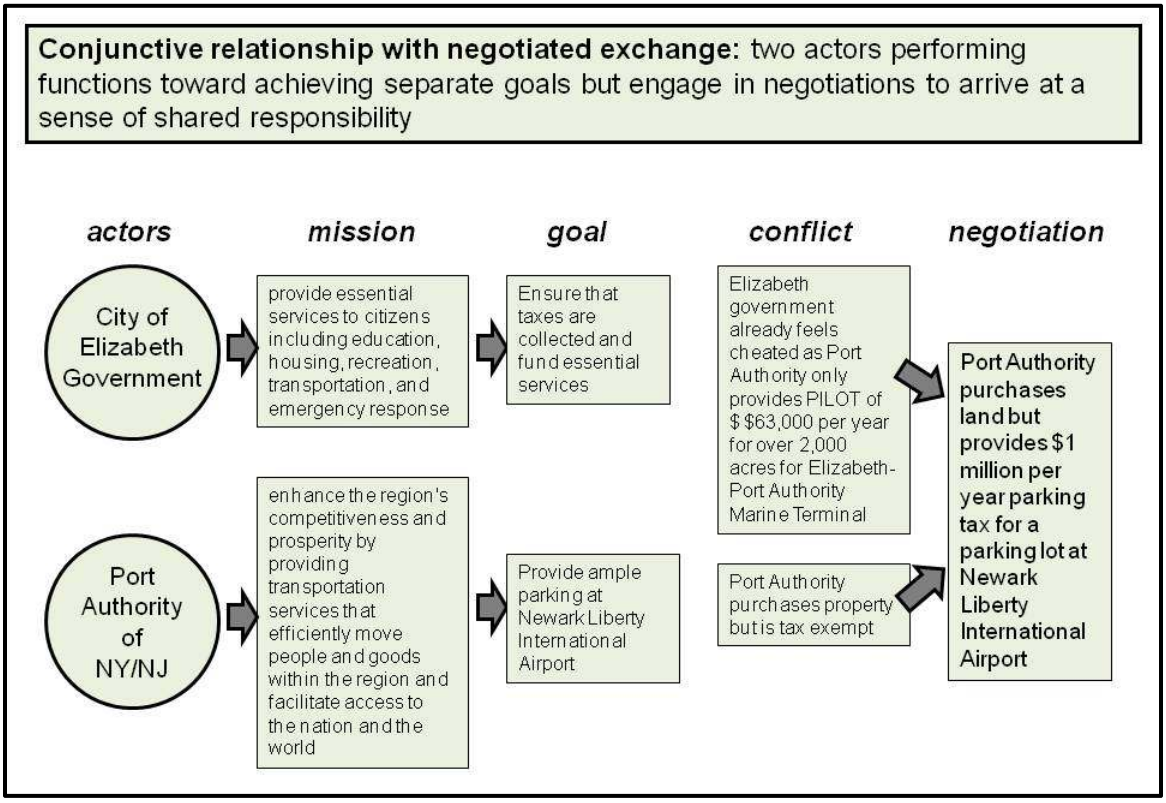


Figure 12.4 Example of Conjunctive Relationship with Negotiated Exchange.

However, one societal aspect of the Port Authority-City of Elizabeth relationship can be viewed as a reciprocal relationship with productive exchange. Mayor Bollwage cited a very positive aspect of the Port Authority-City of Elizabeth relationship regarding safety and security. The Port Authority's Police Department and the City of Elizabeth's Police Department work closely for the protection against, detection of, response to and recovery of incidents involving safety and security at Elizabeth-Port Authority Marine Terminal and Newark

Liberty International Airport (C. Bollwage, personal communication, July 6, 2011). This aspect of the relationship is characterized by cooperation, shared responsibility, and a common goal (see Figure 12.5)

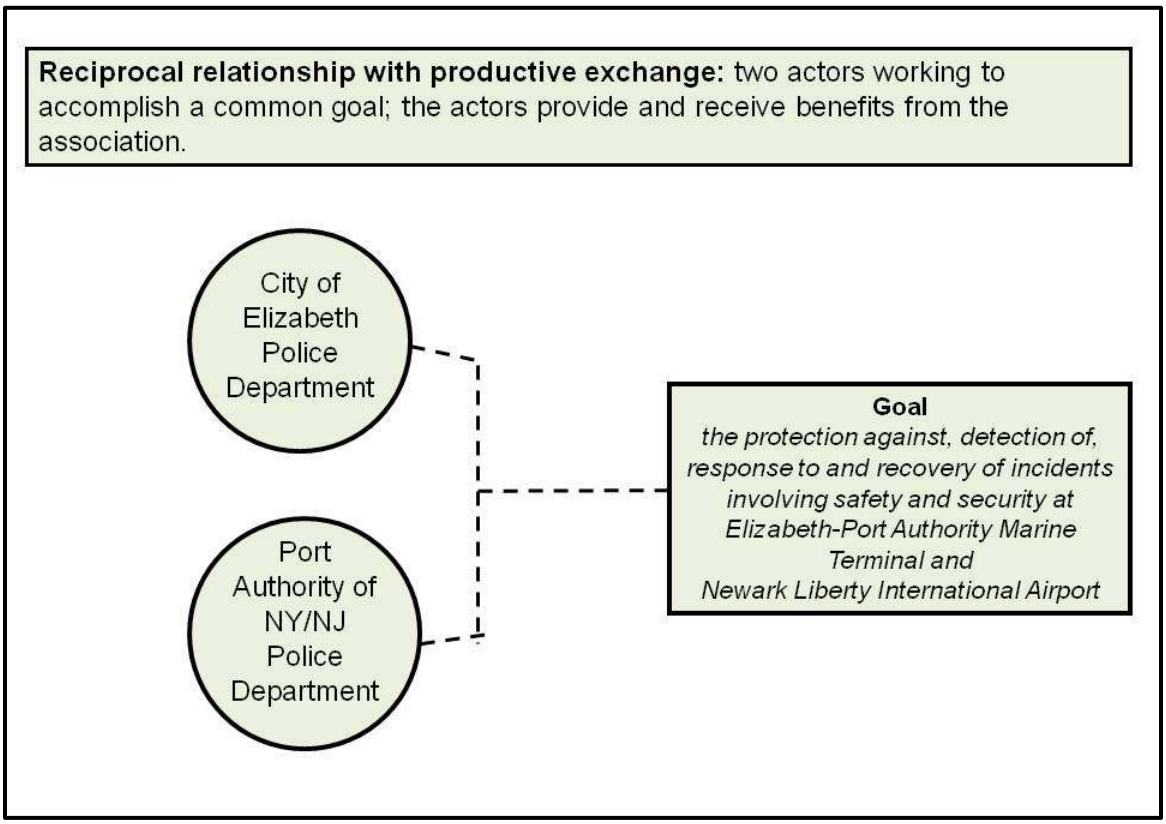


Figure 12.5 Example of Reciprocal Relationship with Productive Exchange.

A final conclusion drawn is that, as a whole, relational cohesion does not exist in these port-city relationships. The causal chain of this theory posits that frequent exchanges generate positive feelings that in turn generate a perception of a unifying force resulting in commitment behavior (Lawler, Thye Yoon, 2008). With comments such as: I don t have any confidence in anything forthcoming from the Port Authority (J. Healy, personal communication, August 6, 2011); The Port Authority never calls me and says, hey what do you think?

Never happens! (C. Bollwage, personal communication, July 6, 2011); and They deal with the city government when they feel it is necessary for their gain (A. Amador, personal communication, July 8, 2011), it is clear that positive feelings and unifying forces are largely absent from relationships between the municipalities and the Port Authority.

12.6 Renewed Collaboration?

Some collaboration exists between the Port Authority and the municipalities. The Jersey City planning staff and Port Authority staff collaborate on truck traffic studies (R. Cotter, personal communication, October 29, 2010). The Kearny government and the Port Authority staff are working together on economic and marketing issues for a possible industrial redevelopment site in South Kearny, as part of the town s FTZ (A. Santos, personal communication, June 3, 2011). But is there renewed collaboration between port and city as waterfront zones are revitalized as Hoyle specifies in the Port-city Evolution Model (Hoyle, 2000, pp. 402-403)? The author s assumption is that when Hoyle refers to revitalized waterfront zones he means port-abandoned and former industrial sites redeveloped for residential, retail, commercial, and recreational uses, not waterfronts within the confines of a working harbor as is the situation in this Newark Bay case study. For this Newark Bay case study, the question becomes: Are the Port Authority and the Newark Bay municipalities collaborating in regard to port interests vs. waterfront redevelopment interests in this working harbor? Based on research conducted for this dissertation, the answer is no. There may be several reasons for this.

The first possible explanation for a lack of Port Authority and municipal collaboration regarding waterfront redevelopment is the scale, type, and location of waterfront redevelopment on Newark Bay. No non-industrial waterfront redevelopment is planned for the City of Newark and the Town of Kearny within this study area. These waterfronts are expected to remain industrial. Thus far, there are no plans for expansive redevelopment of any kind to occur on the Elizabeth waterfront. Redevelopment plans on the Jersey City and Bayonne waterfronts are in areas not conducive to freight handling and freight movement, as the local street network system could not handle a major influx of trucks.

A second possible explanation is that the Port Authority has no plans, as the elected officials and public are aware of, for expanding the port operations beyond the Port Newark□Elizabeth-Port Authority Marine Terminal footprint. While the Port Authority announced in 2011 a □500 million expansion of the Port Newark Container Terminal that will allow for a doubling in the number of containers handled at the port, this expansion falls within the existing port footprint.

Another possible explanation for the lack of collaboration is that the Port Authority has no disposable property on the Newark Bay waterfront. While legislation was passed in the 1980s allowing the Port Authority to undertake waterfront development projects in New York and New Jersey, it is unlikely the Port Authority is interested in non-commercial maritime related redevelopment on Newark Bay because of its lack of disposable waterfront property. The Port Authority□s recent waterfront redevelopment projects are Queen□s West on the

East River in Long Island City and the South Waterfront at Hoboken on the Hudson River, both public-private partnerships (with the municipalities and private developers) involving mixed use (residential, commercial, retail) development (PANYNJ, 2011). Both of these projects involved land the Port Authority owned along a waterfront no longer used for commercial maritime facilities. Thus, redevelopment of such land for viable non-port-related uses was in the best fiscal interest of the Port Authority. These examples differ from the situation on Newark Bay in that the Port Authority does not own Newark Bay waterfront property beyond the footprints of their active facilities; and, unlike the Queens and Hoboken examples, Newark Bay is an active working harbor.

If and when the Port Authority and the Newark Bay municipalities do discuss waterfront redevelopment plans, based on past history, the impetus for such discussions will more likely arise from a conflict of interest between the Port Authority s plans and a municipality s plans.

CHAPTER 13

POTENTIAL FOR LAND USE CONFLICT BETWEEN REDEVELOPING NEWARK BAY WATERFRONT PROPERTIES AND PORT NEWARK□ELIZABETH-PORT AUTHORITY MARINE TERMINAL

The conversion of industrial land and maritime facilities for non-port related uses is occurring near ports around the world. Conflicts, including competition for land (port vs. non-port uses), noise impacts, and truck traffic congestion, are arising (Davis □ Creighton, 2006; Marcelo, 2010; Mongelluzzo, 2007; Popham, 2007; Voelpel, 2006). Near the Port of Amsterdam, the city government has designated land for non-port related businesses that meet the economic goals of the city. This designation prohibits the opportunity for port-related businesses to locate near the port and reduces the port□s ability to expand (Wiegmans □ Louw, 2011). Housing, commercial and retail space and recreational uses are encroaching upon the Port of San Diego (McClain, 2005), the Port of Seattle (Buntin 2004), the Port of Providence (Marcelo, 2010) and the Port of Vancouver (Irhca, 2002). At Port Nelson in New Zealand, the redevelopment of former industrial properties to residential use near the port has caused the new residents to experience high levels of noise. As a result, Port Nelson must now either purchase the residential properties or pay for noise mitigation ("Nelson learns some," 2011).

13.1 Land Use Conflict on the Newark Bay Waterfront

In the final stage of the Port-city Evolution Model, Renewal of Port-City Links, Hoyle states that port-city associations are being renewed (Hoyle, 1998). However, a "renewed" association is not necessarily a friendly one. A hypothesis tested in this research is that land uses conflicts are one characteristic of this "renewed" association. Certainly that is the case for the ports noted above, but the research conducted for this dissertation found no evidence of such conflicts occurring between redeveloping Newark Bay waterfronts and the operating port. One explanation is the US economic down turn since 2008 and the resultant real estate market conditions that have been unfavorable for new construction. Within the past ten years, only a minimal amount of waterfront redevelopment has occurred on Newark Bay. It is unlikely this situation will change within the next two years. A report authored by CapLease, a real estate investment trust, paints a bleak economic picture for new office, retail, and housing construction. During the second quarter of 2010, credit remained "a challenge for" commercial real estate, while ballooning deficits at all levels of government "thickens the cloud of uncertainty engulfing the private sector" (CapLease, 2010, p.1). In 2010, new office construction was down over 36 percent from 2009; vacancies at retail malls reached 9 percent, marking the seventh consecutive quarter for record-breaking vacancies; and, the housing market outlook was dreary. Since the end of 2008, commercial and industrial loans held by US banks have declined. The hope of a recovery in 2011 has been replaced by a "muddle-through" recovery of

slow growth, and the recession is projected to continue through 2011 and most, if not all of 2012 (CapLease, 2011).

13.2 Potential for Land Use Conflicts

While no reported or observable land use conflicts could be found, the potential for land use conflicts exists. The city governments of Elizabeth, Jersey City and Bayonne are all encouraging the redevelopment of former industrial waterfront properties for non-industrial uses. These properties are within the confines of a working harbor, a harbor which by many accounts is expected to experience a doubling of cargo traversing its waters as a result of the widening of the Panama Canal.

Larger containerships and an increase in the number of containers traversing Newark Bay are not the only impacts expected from this new wave of commerce. Handling the cargo once it is off loaded at the port complex will be a challenge. According to Jerry von Dohlen, President of Port Newark Refrigerated Warehouse (a tenant at Port Newark), handling this projected volume of cargo will require an upgraded surface transportation system that carries the cargo from the port complex, and enough capacity in the off-port freight distribution system (J. von Dohlen, personal communication, June 20, 2011). While the Port Authority has undertaken and continues to undertake projects within the footprint of the port complex to improve capacity, efficiency, and through put, at some point the port's footprint will need to expand (J. Curto, personal communication, September 24, 2010). Investments in the port complex, the transportation system and port-related businesses are of critical issue to the port industry. As

noted in *Strategic Trends in Maritime Containerized Shipping, Adjusting to Current and New Realities* issued by Nation□sPort (October 15, 2009),

> The implications of our region□s investment decisions are clear:
>
> - PONYNJ (Port of New York and New Jersey) is the economic underpinning of a significant portion of the entire metropolitan economy. Loss of port activity and revenues would undercut the value of the trillions already invested in the region in all spheres- not just in freight. This would include land values and building rents, taxes, jobs as well as economic activities.
>
> - Large scale private investments are based on assumptions about future public support. Major private investments in this region will depend heavily on the confidence that they have that the underlying transportation system will support them. Failure to make these investments would discourage the private investments on which the system depends for growth and modernization.
>
> - Numerous players in the supply chain are currently evaluating their positions in light of changes in global economic contraction. It must be demonstrated that the region will commit to the necessary transportation infrastructure, support facilities and services (p. 7).

Such investments require land acquisition at a time when waterfront property is being viewed by city governments, developers and investors for non-industrial uses. This is cause for concern, as other ports are experiencing encroachment of residential, retail, commercial and recreational uses near the ports on land that could support port expansion or port-related businesses.

13.2.1 Types of Potential Conflicts

Amato (1999) points to three broad areas of potential conflicts: (1) daily friction (including noise, pollution, traffic congestion, limited mobility of cargo, and visual impacts of port operations); (2) use of spaces (including extension of the port footprint, access to the water, and waterfront redevelopment); and (3) institutional

relations (including the exclusion of cities in port development decision-making, legislative action granting ports priority over cities, and the predominance of external interests in port management). These three areas of potential port-city conflict fit into the societal, spatial, and political aspects of the port-city relationship, respectively. In this case study, aspects of each of these areas of potential port-city conflicts are cause for concern: daily friction from incompatible land uses, loss of waterfront property for commercial maritime uses, and authority and control over the waterfront. Each is discussed in the following sections.

13.2.1.1 Daily Friction from Incompatible Land Uses. Non-industrial land uses (residential, retail, commercial and recreational) near port operations (that contains berths, cargo handling facilities, tank farms, and rail sidings) may be incompatible and may lead to conflict. Daily friction from these incompatible land uses includes a variety of impacts. Typical pollution impacts are:

- air pollution: Diesel emissions from ships, trucks, trains, marine vessels such as tugs, and terminal equipment are known contributors to health conditions such as asthma and emphysema (G. Knatz, 2009) and as such are a common complaints of people who live and work near ports.

- noise pollution: Typical noise generators at ports include cargo vessels, cargo handling equipment, trucks, trains, and dredging operations. Noise pollution has been linked to hearing impairment, disturbance of sleep, mental health problems and interference with daily activities (Berglund, Lindvall Schwela, 1999) and is a common complaint of people who live and work near ports.

Occupants of new residential units and users of recreational, retail and office spaces may complain about:

- the visual impacts from gantry cranes, large cargo and other water vessels, stacked containers, terminal equipment, and lighting associated with equipment, ships and night operations, and
- roadway congestion from trucks and port employee vehicles (Matsuoka, Hricko, Gottlieb, De Lara 2011).

As many waterfront developments include marinas for pleasure crafts, conflicts between vessels used in port operations (cargo vessels, barges and tug boats) with these pleasure crafts are of concern. When asked if the potential for conflicts exist, Jim Devine, President and CEO of Global Container Terminals USA and New York Container Terminal responded "Absolutely! Recreation versus commercial uses, pleasure crafts versus cargo containers vessels. The vessels create a wave action that can capsize a small craft such as a kayak. There will be accidents" (J. Devine, personal communication, July 14, 2011).

In discussing the potential for these "daily frictions" (Amato, 1999) to occur in the study area, the port community representatives mostly voiced concern. The municipal representatives interviewed generally felt that the only major conflicts between redeveloped waterfronts and port operations would involve roadway congestion. However, the port advocacy and port business representatives interviewed agreed that new occupants of waterfront developments along this working harbor would verbalize their discontent not only regarding traffic congestion, but also noise and air pollution and visual impacts. Jim Devine (2011) summed up the sentiment, "This is a stealth industry in that the public, when it goes to the market has no recognition, nor do they care where the goods came from, as long as the goods are on the shelf. They don't

correlate those goods with the needs for a working waterfront and the issues that go with those operations such as noise, light, and trucks.

13.2.1.2 Loss of Waterfront Property for Commercial Maritime Use. Waterfront property is an invaluable resource for the commercial maritime industry, and it is also a finite resource. Loss of waterfront property threatens the very existence of an industry dependent upon the water. The waterfront and adjoining waterways are the only location for the infrastructure that the commercial maritime operations require, including docks, piers and wharves. Waterfront properties are not only needed for cargo ship docking and cargo handling facilities, they are also needed for port-related businesses including tugs, barges, dry docks, ship repair facilities, and port security. According to *Working Waterfront Today,*

> The maritime industry is a vital component of our economy, yet maritime businesses are being crowded out by land owners and developers taking advantage of rising waterfront property values. Shoreline tracts vital to maritime industry are being lost to non-marine uses. Once these waterfront land parcels become housing sites, they are less available for any future port-related development. They also create conversion pressures on adjacent sites. Without enough tugs, barges, repair facilities and other support businesses, the growing shipping industry will not be able to function an economic and ecological calamity, as more trucks would be forced onto our congested highways (Metropolitan Waterfront Alliance, 2008 2009, p. 6).

Loss of upland property near the port complex also threatens the commercial maritime industry. Uplands are needed for non-water dependent uses such as: cargo handling; container storage; truck staging, parking, and repairs; chassis storage; warehouse and distribution centers; training facilities; and rail yards.

According to New York□New Jersey commercial maritime industry professionals, more profitable, non-water dependent uses are threatening water dependent uses. According to Jim Devine (2011), □There is no doubt that the water is a draw for people who want to live, work or play there, but the shipping industry has to be on the water□s edge and in the water. It cannot move inland□. Joe Curto (2011) agreed □We don□t want to see prime real estate which could be developed for maritime lost to other uses. We will never get it back□.

An example of waterfront property that may be lost to non-water dependent uses is Parcel 5 of the Kapkowski Road Redevelopment Area in Elizabeth. This 30-acre waterfront property sits on Newark Bay less than one-half mile south of Elizabeth-Port Authority Marine Terminal. Prior to the developer□s bankruptcy, plans for the property included a □2 billion mixed-use development project consisting of 4,000 residential units, 1,200 hotel rooms, 400,000 square feet of office space and 150,000 square feet of retail space contained in 14 towers (Del Percio, 2008).

13.2.1.3 Authority and Control Over the Waterfront. As loss of waterfront property for commercial maritime uses and conflicts between incompatible land uses become common place (Walker □ Amn, 1998), the question arises: Who is in charge of the waterfront? In the Newark Bay study area, many jurisdictions and agencies have regulatory control over the waterfront and waterways while other organizations have vested interests in the waterfront or the port.

The Constitution and State Legislature of New Jersey bestowed onto each municipality the authority to control its own destiny, including making land use decisions. This authority is commonly referred to as "home rule" (Trafford, nd). Each municipal government controls the redevelopment of waterfronts within its jurisdiction through various regulatory mechanisms including master plans, zoning ordinances and redevelopment designations. Home rule allows each municipal government to permit development within its jurisdiction, even if that development is incompatible with adjacent uses in the neighboring municipality. Property owners, developers and investors are also involved in redevelopment efforts.

Municipal governments however do not have complete control if the development triggers a state or federal regulatory mechanism. So while a municipal government may envision a former industrial waterfront consisting of non-industrial mixed land uses, and a property owner secures investment and hires a developer to design and build this new destination that includes marinas, canals and waterfront walkways, regulatory agencies such as the New Jersey Department of Environmental Protection and the US Army Corps of Engineers may deny the applicant the regulatory permits needed for construction.

Plans for redevelopment are also subject to the objections of other non-regulatory stakeholders including advocacy groups and community organizations. A main activity of the NY/NJ Baykeeper is the prevention or modification of proposed developments that would cause harm to the Newark Bay ecosystem. (This organization successfully defeated a proposed mall in the

nearby Hackensack Meadowlands) (D. Mans, personal communication, January 11, 2011). Organizations such as the New York Shipping Association employ lobbyists and political strategists, who will contact decision makers, regulators, and legislators when certain decisions may negatively impact their constituents businesses (J. Curto, personal communication, September 24, 2010).

Table 13.1 is a list of many of the Newark Bay stakeholders along with a description of their regulatory authority or their interests in waterfront redevelopment and the port.

Table 13.1 Newark Bay Stakeholders

Stakeholder	Mission, Purpose or General Interests Regarding Waterfront Development and/or Port Operations	Regulatory Authority Pertaining to Waterfront Development and/or Port Operations	Interest in:	
			Waterfront Development	Port Newark-Elizabeth-Port Authority Marine Terminal Planning and Operations
Federal Government				
US Army Corps of Engineers (USACOE) (see Figures 13.2 and 13.8)	Investigates, develops and maintains the nation's water and related environmental resources	Regulates the discharge of dredged or fill materials into the waters of the United States	Arises if regulatory authority is triggered	Arises if regulatory authority is triggered
US Coast Guard (USCG) (see Figures	Safeguards the US's maritime interests	Regulates the construction of bridges over navigable waterways; water safety; homeland security	Arises if new development involves water crafts	Yes, for safety, security and navigation reasons
US Environmental Protection Agency (USEPA) (see Figures 13.3 and 13.8)	Protects human health and the environment from significant risks	Administers various Acts including those pertaining to clean air, clean water, wetlands, endangered species, and ocean dumping	Arises if regulatory authority is triggered	Arises if regulatory authority is triggered
US Department of Transportation (USDOT)	Oversees federal highway, air, railroad, maritime and other transportation administration functions	Varies depending on transportation mode, but includes Acts pertaining to safety, access, and design	Arises if a transportation issue under its jurisdiction is involved	Arises if a transportation issue under its jurisdiction is involved
State Government				
NJ Department of Environmental Protection (NJDEP) (see Figures 13.4 and 13.8)	Protects and conserves the environment	Enforces regulations pertaining to coastal zones, wetlands, water quality, floodplains, water pollution, brownfields, and hazardous waste contamination	Arises if regulatory authority is triggered	Arises if regulatory authority is triggered
NJ Department of Transportation (NJDOT) (see Figures 13.5 and 13.8)	Conducts freight planning; handles roadway design, construction and maintenance; handles maritime and marine issues and dredged material management	Enforces and regulates traffic, truck access, roadway design and maintenance, and rail freight	Arises only if a transportation issue under its jurisdiction is involved	Arises only if a transportation issue under its jurisdiction is involved

Table 13.1 Newark Bay Stakeholders

Stakeholder	Mission, Purpose or General Interests Regarding Waterfront Development and/or Port Operations	Regulatory Authority Pertaining to Waterfront Development and/or Port Operations	Interest in:	
			Waterfront Development	Port Newark/Elizabeth-Port Authority Marine Terminal Planning and Operations
NJ Economic Development Authority (NJEDA)	Provides funds for major redevelopment projects; assists municipalities in attracting major businesses	None	Yes, if a development using NJEDA funds will be located on the waterfront	No
NJ Turnpike Authority (see Figures 13.5 and 13.8)	Provides for the safe and efficient movement of people and goods on the New Jersey Turnpike	Enforces and regulates traffic movement, access, and roadway design and maintenance	No	Arises only if a NJ Turnpike issue (i.e., new interchange for port access) is involved
Authorities				
Port Authority of New York and New Jersey (see Figures 13.1 and 13.8)	Operates regional transportation infrastructure including bridges, tunnels, airports, bus terminals, and seaports; owns and leases commercial and industrial properties; operates a resource recovery facility	None	Yes, if the PANYNJ owns the land, is involved in a public/private partnership, or if the proposed development may impact PANYNJ facility operations	Yes
North Jersey Transportation Planning Authority	Develops a regional transportation plan; prioritizes federal transportation funding; involved in freight planning	None	No	Arises if the issues pertains to surface transportation that supports the port complex
Local Governments				
County Governments (Union, Essex, Hudson) (see Figures 13.6 and 13.8)	Owns and maintains certain roads, bridges and parks; provides economic development (activities vary by county)	Promulgates and enforces certain laws and regulations	Yes, if the county owns the land or the site is within an area planned for a particular use that involves the county	Arises if the issues pertains to surface transportation or economic development that supports the port complex

Table 13.1 Newark Bay Stakeholders

Stakeholder	Mission, Purpose or General Interests Regarding Waterfront Development and/or Port Operations	Regulatory Authority Pertaining to Waterfront Development and/or Port Operations	Interest in:	
			Waterfront Development	Port Newark/Elizabeth-Port Authority Marine Terminal Planning and Operations
Municipal Governments (Elizabeth, Newark, Kearny, Jersey City, Bayonne) (see Figures 13.6 and 13.8)	Has authority over and provides essential and emergency services, community planning, economic development, various modes of transportation, utilities, and taxation	Promulgates and enforces certain laws and regulations, including zoning ordinances	Yes	Yes, for certain issues such as emergency response support; payment in lieu of taxes; impacts on quality of life; jobs
Advocacy Groups				
New York Shipping Association	Represents the interests of it members in maximizing the efficiency, cost-competitiveness, safety and quality of marine cargo operations in the port	None	Generally not interested in waterfront development unless plans may adversely impact its members	Yes
National Association of Industrial and Office Properties (NAIOP)	Represents developers, owners, and investors of industrial, office and mixed-use commercial real estate	None	Generally not interested in waterfront development unless plans may adversely impact its members (on a macro scale)	No
Nation'sPort	Promotes the sustainable international movement of goods through a world-class logistics system	None	No	Yes
Metropolitan Waterfront Alliance	Involved in transforming the New York and New Jersey Harbor into a clean and more accessible place to play, learn and work	None	Yes	Yes, if issues such as maintaining a working waterfront

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Stakeholder	Mission, Purpose or General Interests Regarding Waterfront Development and/or Port Operations	Regulatory Authority Pertaining to Waterfront Development and/or Port Operations	Interest in:	
			Waterfront Development	Port Newark/Elizabeth-Port Authority Marine Terminal Planning and Operations
NY/NJ Baykeeper (see Figures	Protects, preserves, and restores the environment of the Hudson-Raritan Estuary	None	Yes, if issues of public access, urban land conservation and preservation are involved	No
Ironbound Community Corporation (see Figures 13.7 and 13.8)	Engaged in community planning and activism in Newark's East Ward	None	Yes, if quality of life issues are involved	Yes, if quality of life issues are involved
Private Entities				
Port Tenant	Leases property and operates businesses on the port complex	None	No	Yes
Shipping Company	Moves freight in the most efficient and cost effective methods along the global supply chain	None	No	Yes
Developer	Buys land, finances real estate, constructs real estate projects	None	Yes	No
Investor	Takes financial risks with capital in hopes of receiving a return on the investment	None	Yes	Yes
International Longshoreman's Association	Represents maritime workers	None	No	Yes

As there is a myriad of stakeholders in the Newark Bay area, each with its own myopic view it becomes evident that no one agency or organization is in charge of the waterfront. Figures 13.1 through 13.7 illustrate the geographic areas of either regulatory control or interest of several stakeholders. Figure 13.8

provides a composite of the aforementioned figures illustrating the overlapping interests of these organizations.

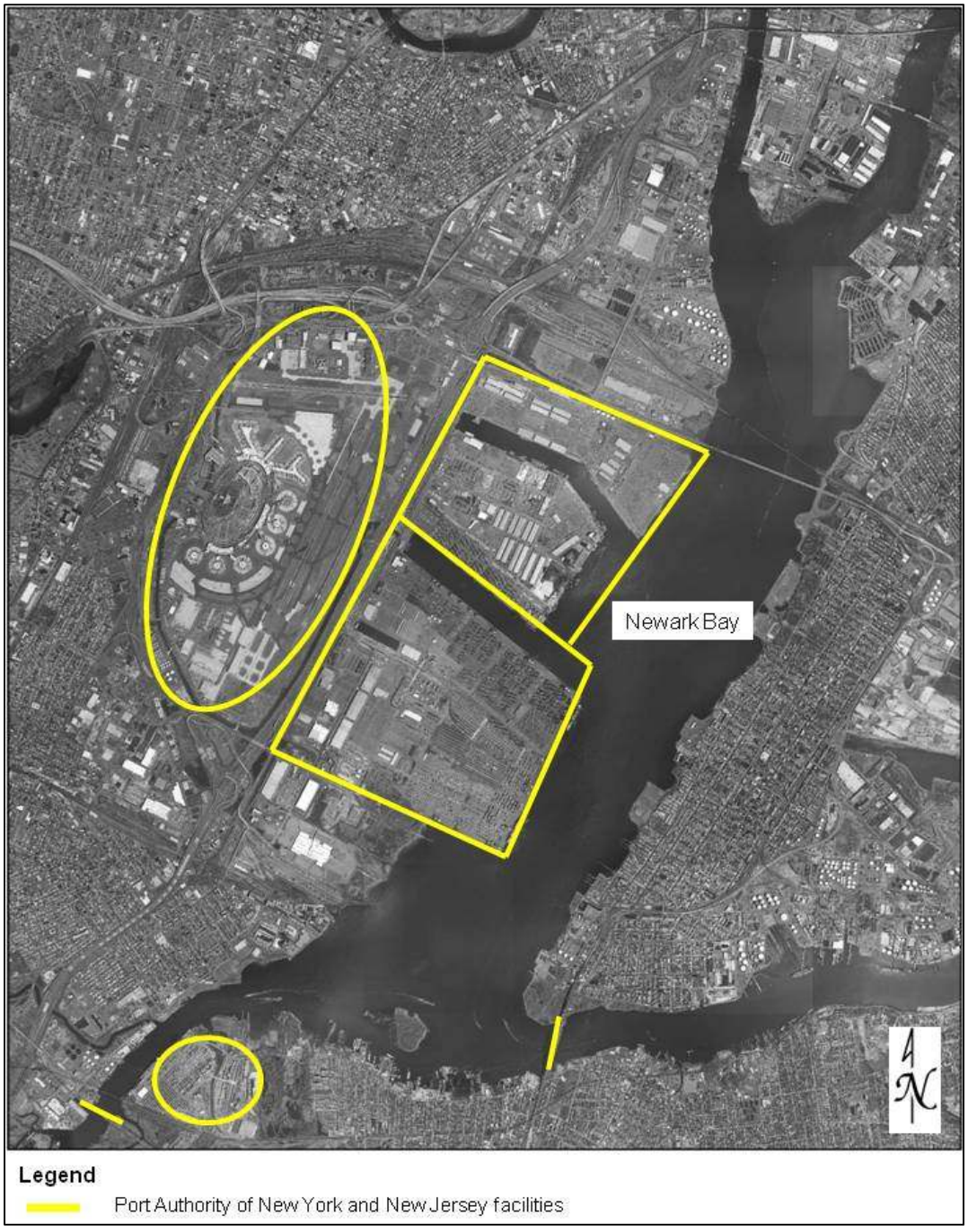

Figure 13.1 The Port Authority of New York and New Jersey facilities in the Newark Bay area. The map shows Newark Liberty International Airport, Port Newark, Elizabeth-Port authority Marine Terminal, Howland Hook Marine Terminal, and Goethals Bridge, Bayonne Bridge.

Figure 13.2 Regulatory geographic area of the US Army Corps of Engineers and the US Coast Guard, and the New York New Jersey Baykeeper s area of interest in the Newark Bay area.

Figure 13.3 Regulatory geographic area of the US Environmental Protection Agency in the Newark Bay area.

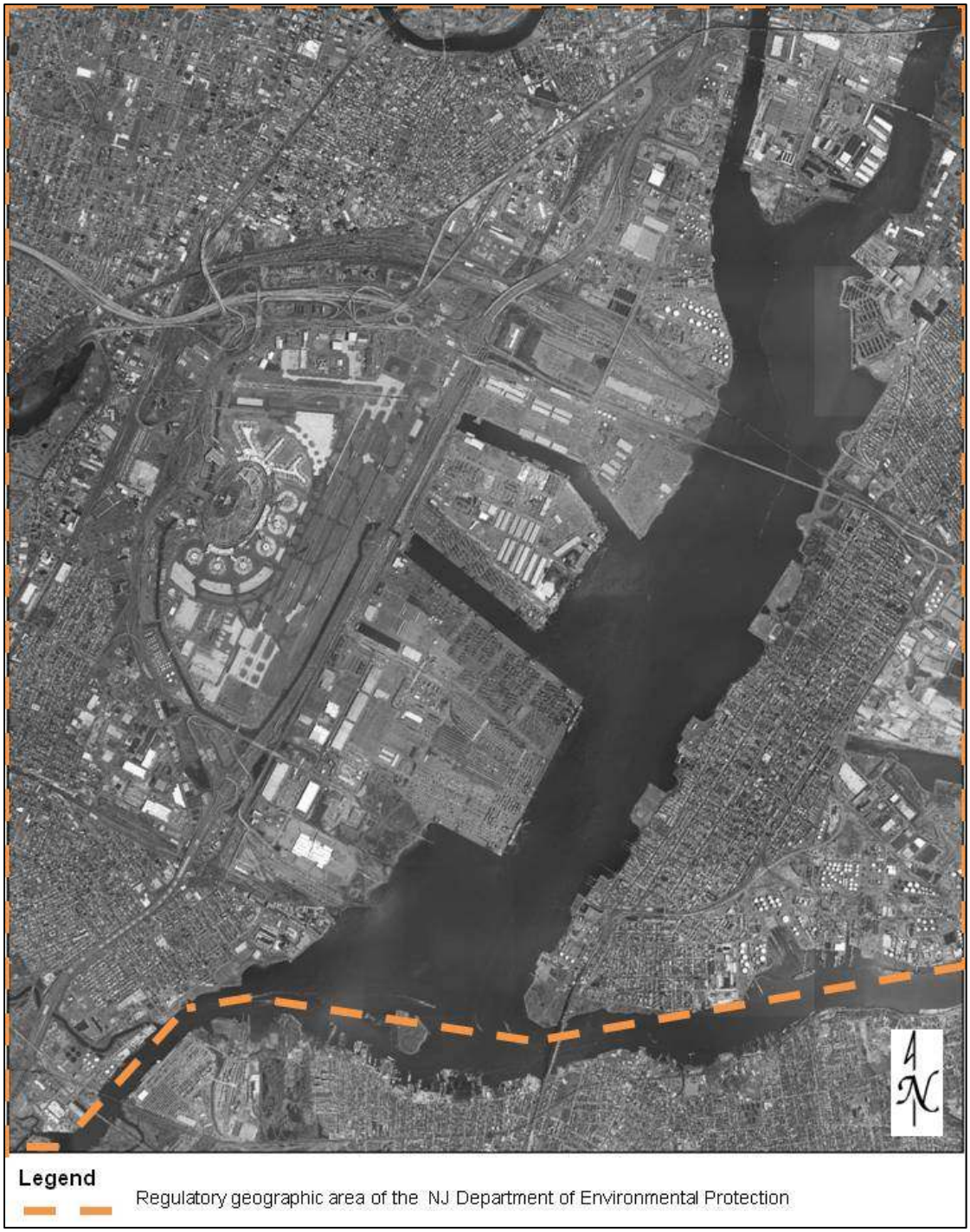

Figure 13.4 Regulatory geographic area of the New Jersey Department of Environmental Protection in the Newark Bay area.

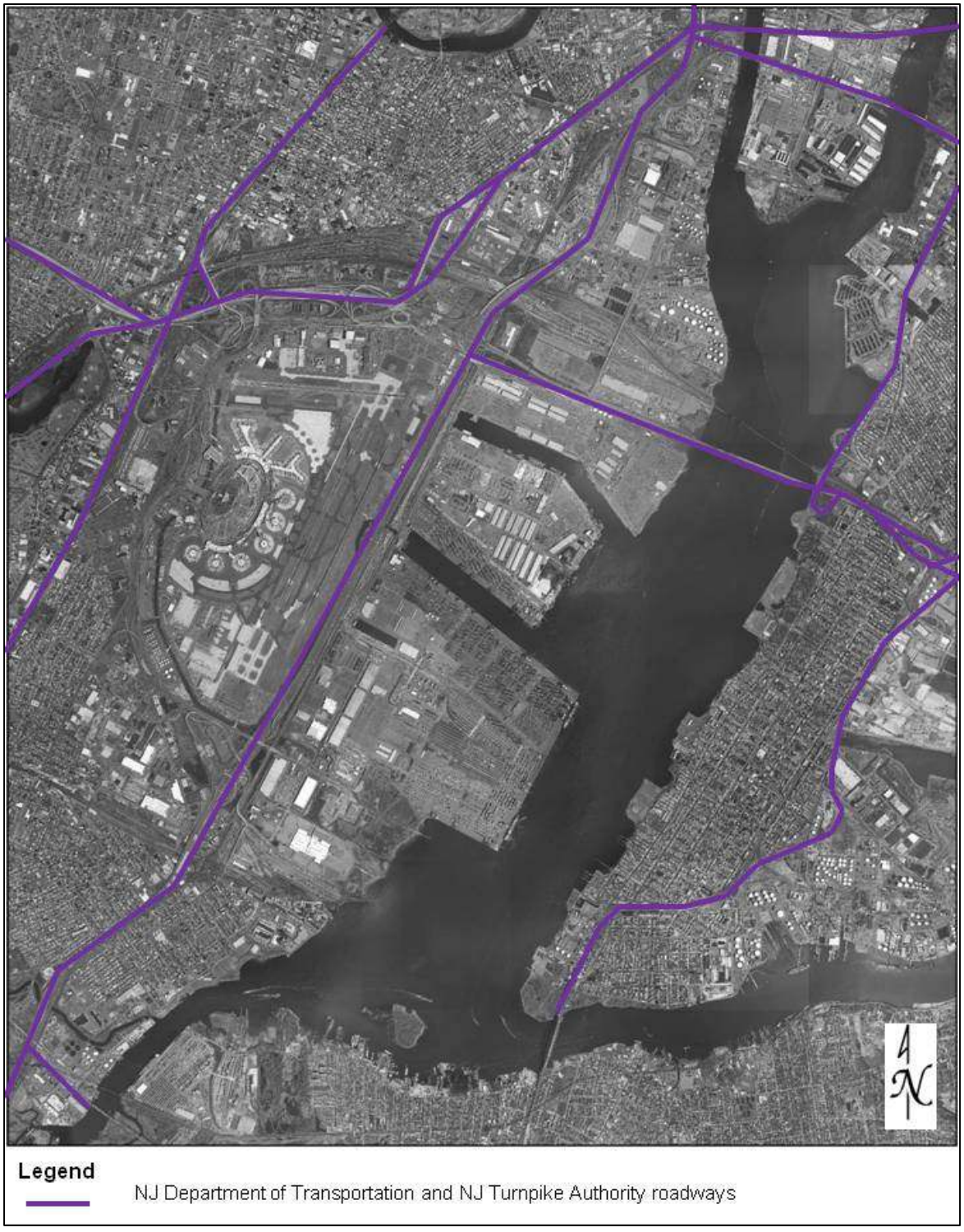

Figure 13.5 New Jersey Department of Transportation and NJ Turnpike Authority roadways in the Newark Bay area.

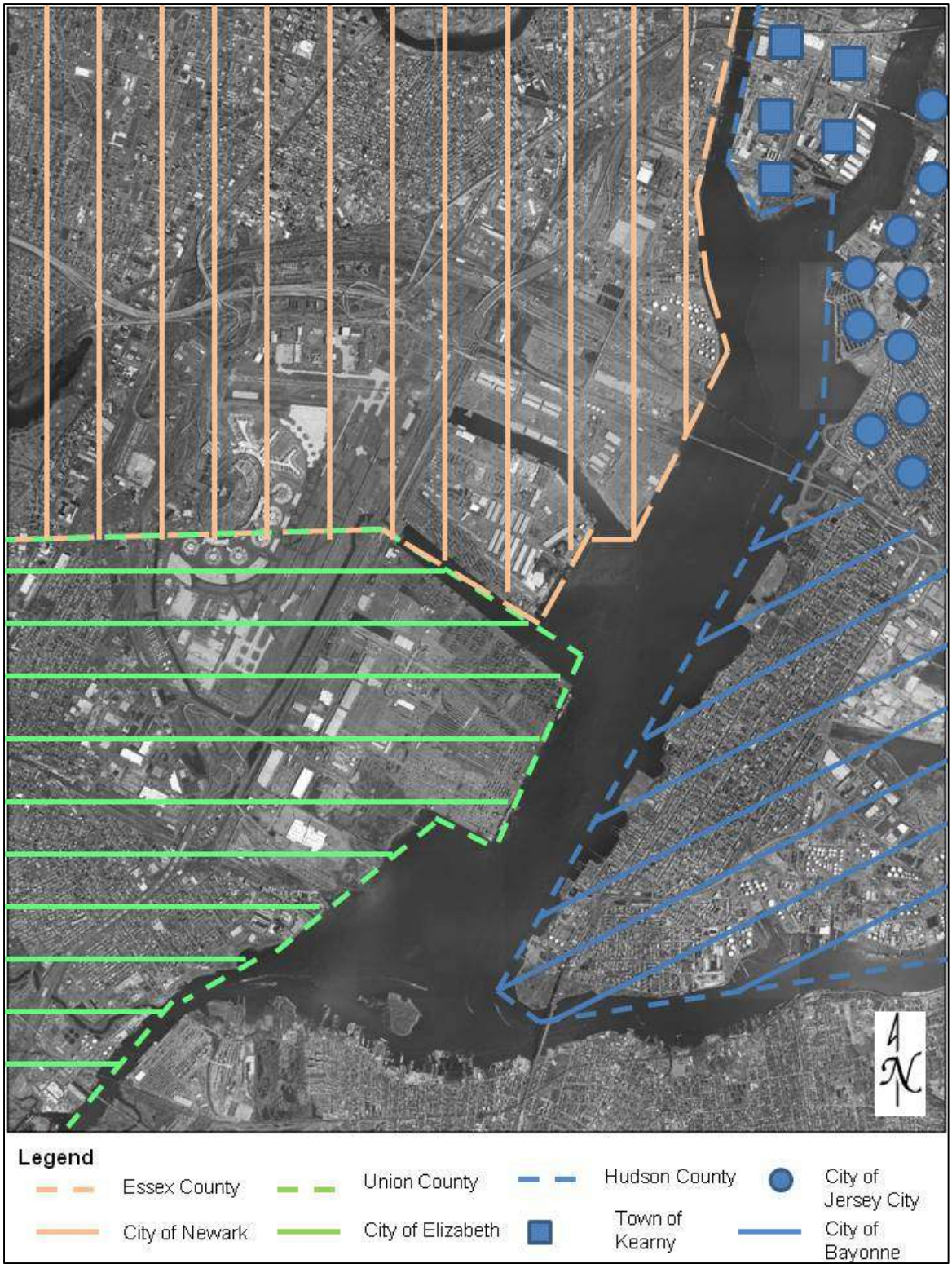

Figure 13.6 Geographic outline depicting the New Jersey counties and municipalities in the Newark Bay area.

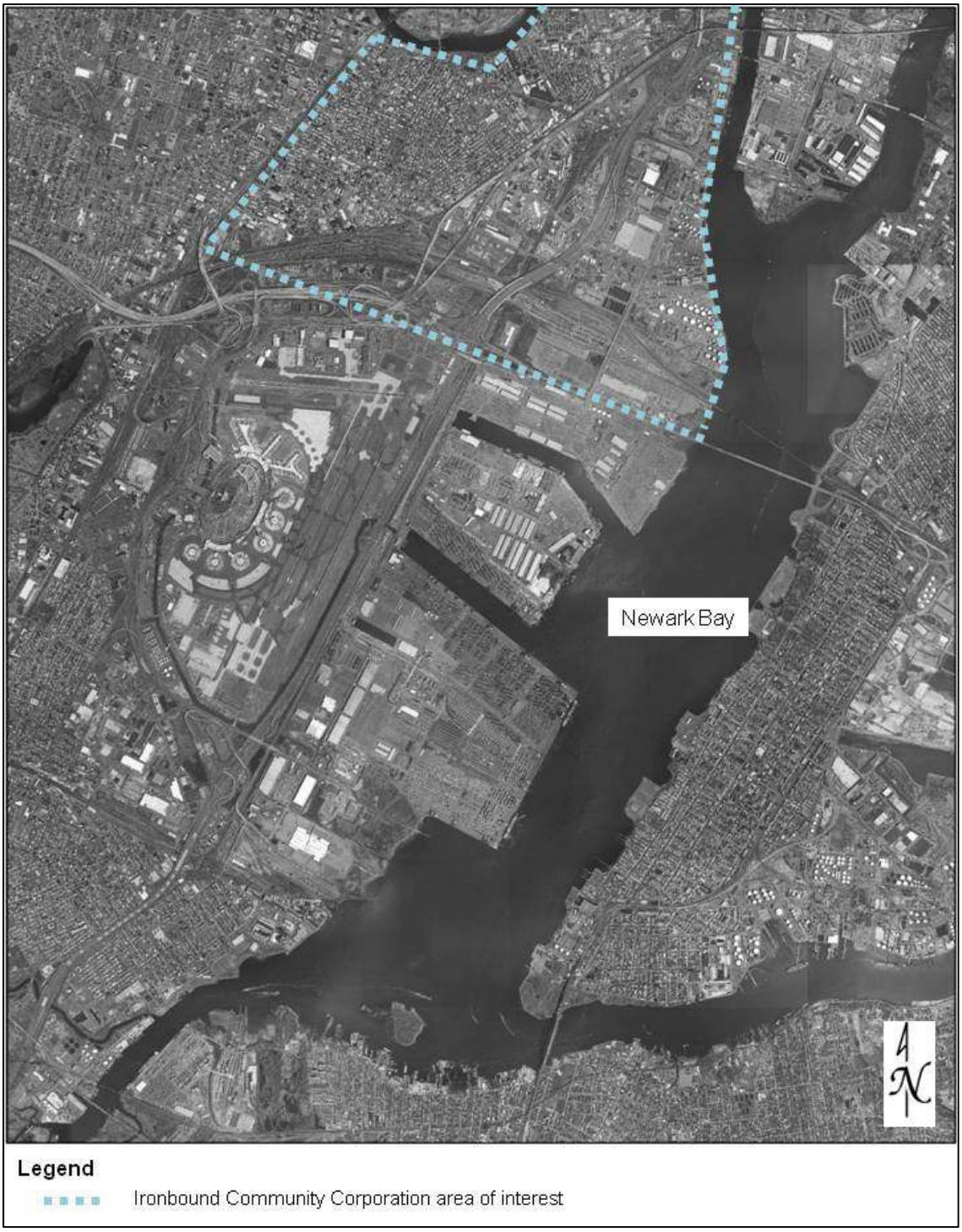

Figure 13.7 Geographic outline depicting the Ironbound Community Corporation s area of interest in the Newark Bay area.

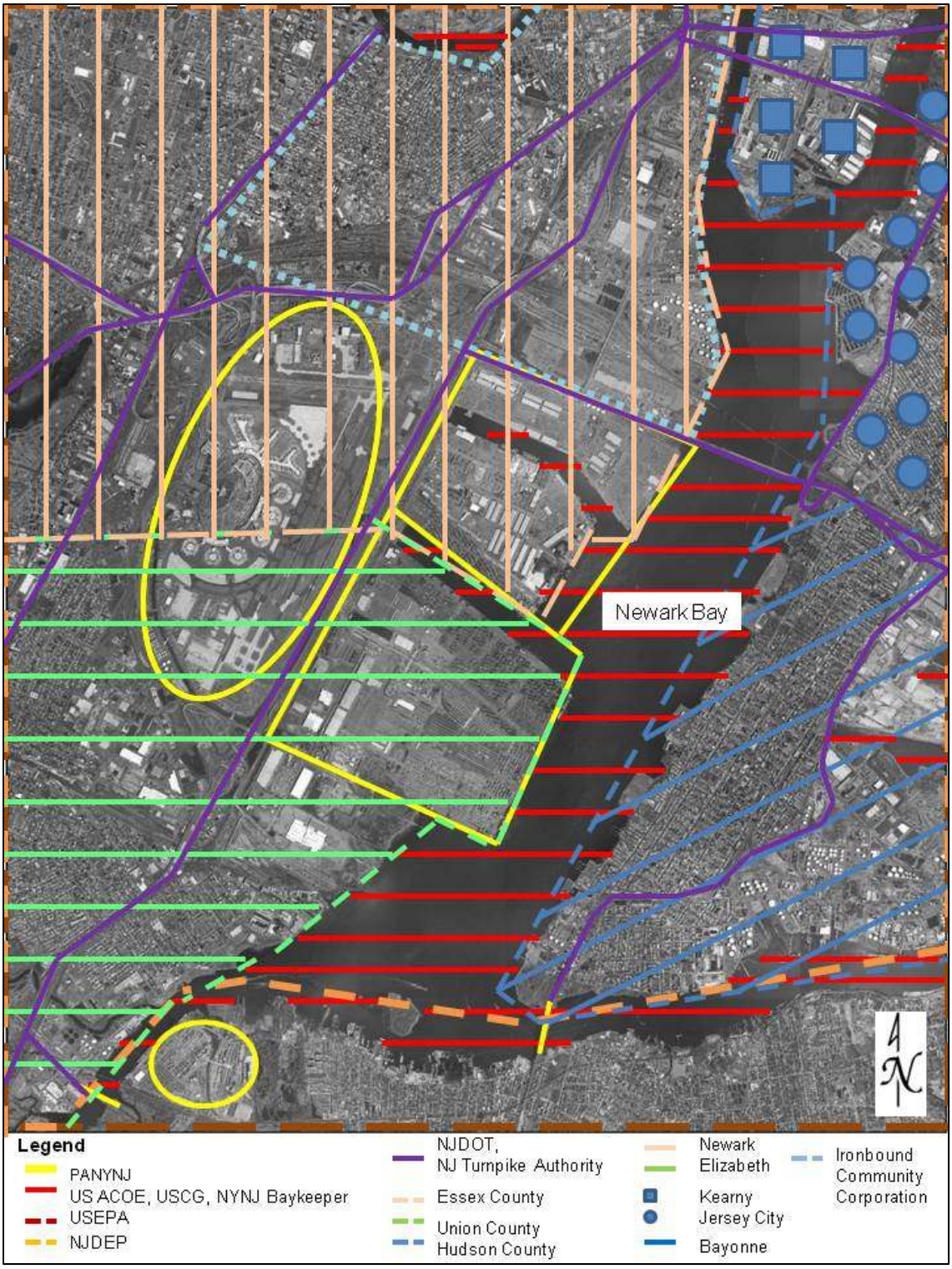

Figure 13.8 Composite of various stakeholder□s regulatory areas and areas of interest in the Newark Bay area.

13.3 Averting Conflict

In the face of possible, and some would argue inevitable, conflicts and the fragmentation of authority and control, several means exist that may help avert conflict, including regional waterfront planning, consolidated regulatory control, and creation of an overlay district.

13.3.1 Regional Waterfront Planning

Given the value and significance of Newark Bay waterfront property to each municipality as well as to the port community and the conflicts being experienced in other US ports, creation of a regional, comprehensive waterfront plan for growth and prosperity seems prudent. However, none exists.

The City of New York did recognize the importance of comprehensive waterfront planning and in 2011 issued Vision 2020: New York City Comprehensive Waterfront Plan. Citywide strategies included in this plan for 520 miles of waterfront in the five boroughs range from expanding public access to the waterfront, to supporting the economic development activities of the working waterfront, to improving governmental regulation, coordination and oversight, to restoring degraded natural waterfront areas (New York City Department of Planning, 2011). Creating such a comprehensive plan for over 500 miles of waterfront is no small feat; it was made possible because the entire waterfront falls under the jurisdiction of one municipality. The extent of the Newark Bay waterfront is far less than that of New York City; however, this waterfront falls under the jurisdiction of five municipalities. In the late 1940s Governor Driscoll requested that the Port Authority conduct a survey of marine terminals along the

New Jersey waterfront for the purpose of improving the commercial maritime potential of this historically nautical and industrial region. The survey pointed to the inability of realizing a cohesive plan for waterfront development because of the multiple municipal jurisdictions (Doig, 2001). That situation has not changed.

No single entity is in control of the Newark Bay waterfront. No vision has been crafted, no plan has been designed, and no systematic effort has been made to evaluate the types of waterfront redevelopment appropriate for a working harbor. "Home rule" is not the only explanation for this lack of regional planning. Myopic perspectives of the stakeholders are also responsible (as noted in Table 13.1). Individual counties and municipalities focus on the needs, conditions and opportunities at their local level. The Port Authority's main focus is the function of the port in the global supply chain. Terminal operators (owned by financial institutions) are interested in fiscal quarter accounting and short term results, not local land uses (J. von Dohlen, personal communication, June 20, 2011). Other entities such as the NJ Departments of Environmental Protection and Transportation have narrow focus such as water quality, or maritime safety or transportation. Yet port industry and advocacy representatives interviewed agree that a comprehensive waterfront development program that yields a plan should be enacted (J. Curto, personal communication, September 24, 2010) and a forum for resolving conflicts in a less than confrontational fashion should be created (J. Devine, personal communication, July 14, 2011). This suggestion is consistent with Bates and Bacon (1972) who recommend the creation of an

interstitial coordinating group to "manage relationships among two or more distinct groups with differing and potentially conflicting interests" (p.376).

On this issue David Stein (2010), Executive Director of Nation's Port said,

> There is a need for better regional overview and regional coordination. There is a need to view the port as a system not just a business. There is a need to maintain the economic vitality of port. The Port Authority doesn't have *overall* controls and planning ability for the port area so we need a plan that includes the New Jersey Economic Development Agency, the Port Authority, the New Jersey Department of Environmental Protection, the New Jersey Department of Transportation, and others that treat the port as a single entity. We can't leave planning up to the individual cities and hope they take the port into consideration (D. Stein, personal communication, 2010).

When asked if the Port Authority should spearhead a regional waterfront planning effort, NJTPA Freight Committee Chairman Peter Palmer responded that "there is a lot of mistrust of the Port Authority. They (the county and municipal governments) do not feel that the Port Authority represents them or would have their best interest at heart." Instead, Peter Palmer suggested a New Jersey state government led planning effort may meet with more success as the local governments have some representation at the state level (P. Palmer, personal communication, June 14, 2011).

13.3.2 Consolidated Regulatory Control

In a report on the future of the New York–New Jersey working waterfront, the Metropolitan Waterfront Alliance (MWA) (2008–2009) presented a series of possible solutions to various economic and environmental challenges facing the vitality of the working waterfront. One such challenge is the lack of a coordinated and sustained regional planning process; another is the overly complex

regulatory system. MWA suggested the creation of a single governmental entity (i.e., a Department of Waterfront) to proactively guide waterfront development (be it maritime, residential, commercial, or recreational use). In addition, the MWA recommended establishment of a one-stop permitting system that would house all waterfront regulatory agencies in one venue where "conflicting regulations can be discussed, deliberated and resolved, and reliable time frames for decision-making agreed upon" (Metropolitan Waterfront Alliance, 2008-2009, p 8). Creation of a single governmental entity (i.e., a Department of Waterfront) to proactively guide waterfront development would be difficult in New Jersey due to "home rule". While a one-stop permitting system would not decrease the number of regulatory agencies involved in the Newark Bay area, it would certainly make it easier for people to navigate the regulatory maze and gain permits in a timely fashion.

13.3.3 Overlay District

Another possible method promoted by Nation's Port and the New York Shipping Association, is the designation of a Port Support Zone. These two organizations have undertaken a campaign to persuade the New Jersey State Legislature and municipalities within a five mile radius of Port Newark-Elizabeth-Port Authority Marine Terminal to protect parcels of zoned industrial land that are either unused or underutilized. Municipalities would be encouraged to develop and administer an "overlay district" in which the conversion of industrial properties to nonindustrial use would be prohibited. Redevelopment of these properties for businesses and activities dedicated to supporting the port (such as warehouses

and distribution centers, repair and maintenance facilities for port related equipment, truck parks) would be encouraged.

The Port of Baltimore undertook a similar effort to prevent the conversion of industrial properties for non-industrial uses. In 2004 a Maritime Industrial Zoning Overlay District (MIZOD) was established for the purpose of protecting industrial, deep water frontage property. Non-industrial uses (such as recreation, housing) are prohibited in the overlay district (Transportation Research Board of the National Academies, 2010). While concerns regarding land use conversion in the Port of Baltimore are similar to those in the Port of New York and New Jersey, the two port areas are different. While Port Newark Elizabeth-Port Authority Marine Terminal is controlled by a port authority, the Port of Baltimore is run by the State of Maryland s Department of Transportation, which is under the control of the governor. Land use regulations that affect Port Newark Elizabeth-Port Authority Marine Terminal are created by multiple municipalities. Land use regulations that affect the Port of Baltimore are made by one city. In the case of Baltimore, it was the governor who created a task force to tackle the issues surrounding the vulnerability of port controlled lands (Transportation Research Board of the National Academies, 2010). In the case of the Port of New York and New Jersey, no such task force or regional planning effort has been undertaken. As with the single governmental waterfront department and port support zone ideas discussed above, the challenge in creating a Maritime Industrial Zoning Overlay District in the Newark Bay area is the involvement of multiple municipalities and the issue of home rule.

CHAPTER 14

IMPLICATIONS

This research provides a comprehensive historical account of the evolution of the Port of New York and New Jersey, demonstrates the complex port-city relationships and portends land use conflicts between an operating port and redeveloping waterfronts for non-industrial activities. The contributions of this research and its significance for public policy and future research are presented in this chapter. The chapter concludes with a proposal for a Newark Bay Partnership as a means of averting conflict and improving port-city relationships.

14.1 Significance of this Research

Much research exists about the Port of New York and New Jersey. Some researchers focus on the ecological aspects of the waterways; others focus on the port's growth over a time span of only a few decades; while others focus on the redevelopment of the Hudson and East Rivers' waterfronts. In *Empire on the Hudson* (2001), Jameson Doig provides well-documented and intriguing insights into the creation of the Port of New York Authority and the inner workings of the agency from a political science perspective. All of this research informed the research conducted for this dissertation. But this dissertation's findings go beyond what is currently known and documented. It is a comprehensive account of the evolution of the Port of New York and New Jersey that weaves together a myriad political, economic, regulatory, planning, engineering, commercial, global and societal events, issues and actions into a complex tale that spans over 200

years. This dissertation contributes to the existing body of literature, illuminating not only how this port has grown and changed from its establishment to 2010 but also the causes and consequences of that growth and those changes. This type of account does not currently exist in the literature regarding the Port of New York and New Jersey. The complexity of this narrative mirrors the complexity of this port's history and present (2011). The evolution of the Port of New York and New Jersey is not commonly known, nor are the forces that steered this evolution. Those who work at the Port Authority may know some history of the agency, but not necessarily that of the port. Those who work at the port are knowledgeable about some of the daily operations, primarily as they pertain to their individual responsibilities, but know very little about how the port grew and how the port business has changed. The elected and appointed officials who govern the Port Authority and the elected officials who govern the municipalities may be aware of the present political climate, but are unaware of the political actions that influenced and altered the port. And the residents of the region see the port's cranes, trucks and stacked containers but are unaware of how decisions made decades ago led to the current locations of the port's facilities. The history of this port and the current port-city relationships is a complex tale and this dissertation provides the most comprehensive account of this tale to date.

This dissertation presents a new port-city evolution model. Using Hoyle's Port-city Evolution Model as a framework for this case study provided a valuable structure for historical research about the Port of New York and New Jersey. But

as Hoyle's model proved to be too general and too linear for this particular port, a model specific to the Port of New York and New Jersey was created. The Port of New York and New Jersey Port-city Evolution Model contributes to the body of literature illuminating this port's growth and changes, the driving forces behind such growth and changes, and the intricacies of several port-city relationships. As discussed in Chapter 9, the Port of New York and New Jersey Port-city Evolution Model offers researchers a framework more robust than Hoyle's model. This new model could assist researchers in culling the nuances of a specific port's growth and change over time and establishing the unique relationships it has with the city or cities where it is located. By using the driving forces that steered this port's evolution as guides, the researcher can uncover the political, economic, technological, societal and environmental actions and influences that led to another port's transformations. The port-city relationships uncovered in this dissertation can form the basis for discovering the port-city relationships in other ports. As indicated in the Port of New York and New Jersey Port-city Evolution Model, the one port to one city association transformed multiple times during the existence of this port, to the relationship that is evident in 2010: one port with multiple facilities in multiple municipalities in two states. The existence of a bi-state autonomous authority that controls the port adds another dimension to the port-city relationship. Additionally, each port-city relationship studied is multifaceted, sometimes contentious and unique to each city. Thus, use of Port of New York and New Jersey Port-city Evolution Model as a framework for researching port-city relationships of other ports will assist in navigating the

various relational aspects and mining the multifarious nature of these associations.

This dissertation also adds to what little literature remains in the Port Authority's holdings. The Port Authority of New York and New Jersey's library was destroyed on September 11, 2001.

Some would argue that society's thorough knowledge of historical events is critical, so as not to repeat past mistakes. While history does not necessarily repeat itself, as conditions in the present are not the same as conditions in the past, lessons can certainly be learned from past experiences. In that vein, this research not only enhances the current understanding of port evolution, port-city relationships and the potential for land use conflicts between operating ports and redeveloping waterfronts, it also presents a cautionary tale. The historical narrative of the Port of New York and New Jersey presents several factors that led to changes in the port including: dwindling municipal finances; congestion at the docks and on the streets that hampered cargo handling; political resistance to and suspicion of the Port Authority; local government's desire to control the waterfront's economic potential; and lack of cooperative planning. This study indicates that these factors are not only part of this port's history; they continue to be important at present and into the foreseeable future.

While this research revealed that many stakeholders have either regulatory control or a vested interest in the waterways and waterfronts of the Newark Bay study area, two major stakeholder groups have the most influence on the shores of Newark Bay. The first is the commercial maritime business

known as Port Newark Elizabeth-Port Authority Marine Terminal; the other consists of the five municipal governments. These two groups have differing objectives, agendas and motives. The shipping industry is sensitive to the speed at which cargo is transported and the associated costs. Its allegiance is not to a specific port but to the bottom line. Therefore, the Port Authority must continually improve the quality and efficiency of its operations to retain its commercial cargo customers and remain a viable business. Each municipal government s allegiance is to its citizens and their quality of life. Dwindling municipal coffers are hampering efforts to sustain and improve that quality of life. It is likely that each of these stakeholders will take whatever steps are necessary to ensure that their constituents, whether they are shipping companies or citizens, are satisfied. That may be to the detriment of the other stakeholders. Increased cargo handled at the port benefits the port s business but that increased volume, when moved onto the roadway system, may threaten the quality of life of the municipal residents. Redevelopment of waterfront properties for non-industrial uses may increase the municipal tax base but result in a loss of land for potential port expansion.

Despite the diverging interests of these two major groups of stakeholders, the port and the cities still need each other. The port is located and functions within municipal boundaries, and so is dependent upon and influenced by local government decisions. The municipalities (local government and citizens) depend on the port for revenue, employment, and goods. These conditions on Newark Bay are not unique. As mentioned earlier in this dissertation, similar

situations are occurring in Cape Town, South Africa, and the ports of San Diego, Tacoma, Seattle and Vancouver where the needs of the commercial port and the needs of the municipalities are at odds and are being played out in the area Hoyle refers to as the port-city interface (Hoyle, 1989). The findings of this research contribute to the literature regarding port-city conflicts.

While this study found no reported or observable land use conflicts between the operating port and redeveloped waterfront properties for non-industrial uses, a significant finding of this research is that there is a strong potential for such conflicts in the future. The results of this study indicate that the myopic views of the stakeholders, along with the lack of coordinated regional planning and apparent mistrust of the Port Authority, may lead to another stage in the port-city evolution, one that hinders the port *and* the municipalities

14.2 Port Authority Perspective

The Port Authority of New York and New Jersey's first hand perspective on various issues was not provided for this study. While some Port Authority perspectives were garnered from published documents and non-Port Authority employees, input from Port Authority staff could not be attained as requests for interviews went unanswered. Had interviews been conducted, Port Authority staff input on the following issues and questions would have enhanced this study:

- Plans for port expansion. Plans to expand the capacity of Port Newark were recently (2011) announced. The Port Newark Container Terminal will be investing $500 million for expansion to accommodate the handling of twice as many containers by 2031. However, that expansion will occur

on the current footprint of Port Newark (Gibson, 2011). A question for the Port Authority staff would have been Are there any plans to expand port operations on Newark Bay beyond the Port Newark Elizabeth-Port Authority Marine Terminal footprints?

- Port-city and Port Authority-city government relationships. Representatives of each of the five Newark Bay municipalities provided perspectives on port-city and Port Authority-city relationships. This dissertation unveiled unique and multifaceted relationships between the port operations and the cities and between the Port Authority and the municipal governments. While a few examples of cooperative relationships were found, for the most part the relationships were marred by conflict. How does the Port Authority view its relationship with each of the municipalities?
- The Port Authority as a business. Three years after the Port Authority was created in 1921, several cities argued that the Port of New York Authority should pay local taxes on its facilities as they constitute business operations and not essential government functions. In interviews with municipal representatives conducted for this research, a similar sentiment was voiced. Both Jersey City s Mayor Healy and Newark s Councilman Amador viewed the Port Authority as a business and suggested it contribute not only monetarily through appropriate payments-in-lieu-of-taxes, but also to the community s quality of life. What is the Port Authority s response to those assertions?

- Conflicts and the Potential for Conflicts. From the perspective of the port businesses and advocacy groups interviewed, no conflicts between redeveloping waterfronts on Newark Bay and the operating port exist because very little redevelopment has taken place in recent years. However, they all voiced concern that in the future such conflicts will accompany waterfront redevelopment for non-industrial uses. Is the Port Authority aware of any conflicts in the Newark Bay area or the other areas of the Port of New York and New Jersey? Does the Port Authority share the concern voiced by the port business and advocacy groups interviewed? Is the Port Authority taking a proactive approach (such as engaging in regional planning and coordination) to avoid such conflicts in the future?

If interviews had been conducted and if Port Authority staff had been forthcoming, the agency s plans and perspectives would have added value to this research. However, it is unlikely that interviews with the Port Authority staff would have revealed anything beyond what is easily found in its printed materials. The Port Authority is a public agency ultimately controlled by elected officials. As is the case with other public agencies, it is highly visible and is subjected to scrutiny by the media, politicians and the public. The Port Authority management is sensitive to this magnifying glass and thus carefully controls information available to the public. The public messages are carefully crafted

and approved before distribution. Staff is very careful not to divulge information that has not been approved for release.

14.3 Future Research

This study contributes to improved understanding of the Port of New York and New Jersey's past and the present conditions on Newark Bay. This research can serve as a base for future studies, particularly ones that focus on the means of improving contemporary port-city relationships to generate more productive and cooperative associations and to avoid conflicts between incompatible land uses. For example, while this study focuses on contemporary port-city relationships between the port and the five Newark Bay municipalities, Port of New York and New Jersey facilities also exist in Brooklyn and Staten Island. In an effort to understand the present conditions, a lens on the past is suggested. A study of the Port of New York and New Jersey's history in Brooklyn or in Staten Island could include an evolutionary time line that illustrates when and why these locations were chosen for port facilities. The driving forces behind those decisions could be uncovered. Were they political, economic, technological, environmental and/or other reasons? In analyzing contemporary times, research questions could include: What are the aspects of the port-city relationship? Are they spatial, functional, political, economic and societal as was found in the Newark Bay area? What is the Port Authority-city government relationship? Is this relationships as multifaceted and contentious as was found in New Jersey? A study could also be conducted focusing on conflicts between redeveloping waterfronts for non-industrial use and port facilities in Brooklyn, as well as in

Staten Island. Have waterfront properties been redeveloped for non-industrial uses? If not, have plans for such redevelopment been created? Do daily friction type conflicts exist? Is there potential for such conflicts in the future? Are measures in place to resolve such conflicts or avert future conflicts?

In addition, port facilities are expanding in Jersey City and Bayonne on the Hudson River and Upper New York Bay sides of the municipalities. Will those expansions and waterfront redevelopments result in conflict? The research conducted for this dissertation could be expanded into these other areas of the port. Of particular interest would be the conversion of the former Military Ocean Terminal at Bayonne (MOTBY) site to mixed-use development *and* commercial port operations. This site could serve as a case study of conflicts and cooperation between these seemingly incompatible land uses. In a review of successful US and British waterfront redevelopment projects, Jones (1998) concluded that their success is based upon a balance between facilities that address the economy and social aspects, private-public partnerships and a comprehensive redevelopment strategy. Will such a balance be achieved at the former MOTBY site?

14.4 Future Policy

Three lessons learned from the historical narrative are relevant to the current conditions uncovered in the Newark Bay study area. The first is that political resistance to and suspicion of the Port Authority can lead to decisions that adversely impact municipalities. In 1948, the Port of New York Authority offered to purchase the New York City owned maritime facilities and finance a

modernization program that would include the construction of a dozen new steamship berths, construction of carfloat terminals, and various other rehabilitation projects. The city government rejected the Port Authority's proposal, mainly because some in the city government and the longshoreman's union were uncomfortable with the Port Authority taking control (Bird, 1949; Doig, 2001). The Port Authority being an autonomous agency was viewed with suspicion. That decision led to losses for the City of New York. It lost an opportunity for the improvement and modernization of a significant portion of its waterfront infrastructure at no cost to the municipality. And, since the City of New York remained responsible for those decaying facilities, the city government had to spend funds to at least minimally maintain the infrastructure. The city government lost the annual payment the Port Authority would have provided. And the city lost additional jobs the modernized facilities would have created, as well as the economic contributions employees and business would have made to the city via taxes and purchases.

The second lesson learned is that municipal financial constraints can lead to loss of economic opportunities. In the above example of the City of New York rejecting the Port Authority's offer to purchase the city's maritime facilities, the city government did not have the finances to modernize the waterfront facilities, leaving them in disrepair for years. That resulted in a loss of economic opportunities for the city.

The third lesson learned is that a lack of cooperative planning can result in lost economic opportunities for a municipality. In the 1940s the Port Authority

began to focus on unifying the port with the aim of creating and maintaining it as a "gateway of world commerce" (Doig, 2001, p. 251). The Port Authority surveyed the waterfronts within the port region, identified potential sites and approached each municipality with a proposal to finance and modernize their existing facilities. There was no cooperative planning that integrated the municipal growth needs and the port's needs. The Port Authority determined the best locations for port facilities and settled where the municipal host was receptive. Some municipalities benefitted and some lost out on the benefits derived from a commercial cargo handling facility and associated businesses. Many port-related businesses left the New York waterfronts and relocated to the modern facilities on Newark Bay, especially after containerization became a common method of transporting cargo. What will be the new technology that transforms the port? Will that lead to the port operations moving to new locations because of a lack of cooperative planning between the stakeholders?

This research's cautionary tale can be the foundation for public policies enacted within the case study area. Policy makers should not continue to address problems unique to the port and problems unique to municipalities; they need to find strategies for regional coordination and planning to address all of these problems in ways that benefit both the port and all the municipalities. Proactive communication, coordination and regional planning that consider both the needs of the port and of the municipalities are vital. While public policy cannot dictate trust, effective communication can go a long way toward building needed trust between the municipalities and the Port Authority. The Port

Authority and the port advocacy groups need to develop comprehensive and effective public information campaigns to educate the public and elected officials as to this port's significance and its value to the region and its citizens. A clear, dependable and predictable method of communication must be established between the Port Authority and the municipalities. The Port Authority and the municipalities must establish a clear dialogue and be forthcoming with their needs. An atmosphere of cooperation and collaboration must be established in order to improve existing relationships and establish new, productive associations. As noted in Garcia's study on port-city relationships in Barcelona, San Francisco and Lisbon, "Public debate increasingly influences the political decisions of port relocation, as citizens (and their representatives) realize changes affecting both the city and the port are neither strictly private (a concern of investors), nor public but are a collective responsibility" (Garcia, 2008, p.75).

A partnership between the Port Authority, the municipalities and other stakeholders must be established. A set of common goals regarding the future of the waterways and waterfronts on Newark Bay needs to be created. Public-public and public-private partnerships are needed to identify economic development opportunities and determine compatible waterfront land uses on Newark Bay. Pooling of stakeholder financial and technical resources to achieve the common goals is needed.

A waterfront plan is essential for the Newark Bay area that takes into account the needs of the port, the needs of the municipalities, and the ecological sensitivity of the area. At present, the myopic actions of stakeholders hinder that

cooperative planning. A greater sense of urgency in public policy is needed for improving port operations and cargo flow while also improving the economic vitality of municipal waterfronts, all along attempting to ensure harmonious land uses. The economic stability of the port and of each municipality is at stake.

14.5 The Newark Bay Partnership

This research suggests possible ways to avert conflict and improve port-city relationships. Improved communication, trust building and cooperative planning are needed in the Newark Bay study area to ensure that port operations remain viable and continue to be a major economic engine for the New York-New Jersey region. Improved communication, trust building and cooperative planning are also needed in the Newark Bay study area to ensure that the needs of the municipalities (i.e. economic development, recreation, quality of life) are also met. To that end, I am proposing the establishment of a Newark Bay Partnership.

In Chapter 12 of this dissertation I equate the Newark Bay area to a community, one in which conflicts and competition are managed. I continue with the suggestion that the Newark Bay area (waterfront and waterways) should be viewed as a community, not as distinct multiple municipalities with a large port. In that vein, the questions to be addressed are: What are the needs of the community? What actions best serve the community? How can the community be sustained? The answers to those questions should be developed by the community, in this case the major stakeholders, through a partnership. A partnership is an association where the stakeholders agree to cooperate to

advance their mutual interests. It is characterized by shared visions, shared gains and shared losses. It is a collaboration. The proposed Newark Bay Partnership would be an association of stakeholders collaborating to advance the sustainability of the Newark Bay waterfronts and waterways. The term sustainability refers to using resources in a way that does not lead to depletion or permanent damage. The resources in this study area include the waterways, the waterfront and the port.

In describing the concept of a Newark Bay Partnership, it is equally important to define what it is and what it is not. The Newark Bay Partnership is not a government or quasi-government agency. It is not a waterfront commission or private corporation. It cannot be politically motivated or politically lead. The Newark Bay Partnership is a new model that transcends myopic views, home rule mentality, and political posturing. It is a forum for the major stakeholders to unite behind a common good, create a shared vision, and build excitement over the potential of the Newark Bay area. It is a mechanism for facilitating partnerships around common themes, devising action plans and realizing results.

The foundation of the Newark Bay Partnership is the active and enthusiastic participation of the Port Authority of New York and New Jersey, the five Newark Bay municipalities and Staten Island. (Although Staten Island was not included in this dissertation, the borough is the southern boundary of Newark Bay and its participation is equally important to the success of the Newark Bay Partnership.) Those seven entities constitute the basic forum. Depending on the issues discussed and activities of the subgroups, other stakeholders including

the county governments, advocacy groups and regulatory agencies would be asked to participate.

As this is a partnership, from the onset, the representatives from the six municipalities and the Port Authority must make certain commitments to the partnership. The first is that egos, political agendas, suspicion and negative feeling toward the other stakeholders are left at the door. These representatives must come into this partnership with the following mind set:

- The Newark Bay area is a community with many assets and many needs and will be viewed as a community not as political subdivisions. There is no room for the myopic views of stakeholders or territoriality. There must be a mutual shift in perspective from "us and them" to "us".
- The potential losses on the Newark Bay area are great and would affect the entire Newark Bay community, not just one municipality or one agency. Those losses include decreased economic potential, ineffective port operations and diminished quality of life.
- Collaborative planning and ultimate implementation of plans and programs take time. Generally, elected officials want a quick win because they need to show success before the next election. Each stakeholder must understand that some plans and actions may not materialize for months or years. The life of the Newark Bay area will transcend the political life of current and future elected officials.
- A successful partnership and the Newark Bay area's sustainability depend on the active and honest participation of the stakeholders. All

> must be willing to roll up their sleeves and work for the common good. All must be willing to serve and act as a united front, to share in meeting the challenges and in taking the credit for successes.

In addition to the seven foundational participants and other stakeholders, the Newark Bay Partnership must have an unbiased professional leading the effort and the support of a small technical staff. The professional lead will serve as the facilitator of discussions, the organizer of subgroups and the champion of the partnership. The professional lead will steer the activities of the partnership and will work to ensure that stakeholders are engaged, that compromises are fair, and that all participants share in the prosperity and the credit.

The first order of business for the Newark Bay Partnership participants would be to collectively determine the community s assets, challenges and opportunities. Based on that consensus activity, the next task would be to create a common vision for the Newark Bay area. Again, the group must look beyond municipal boundaries and agency missions in developing the common vision. The vision would be a broad idealistic view of the Newark Bay area - what it should be. From this vision the participants would determine missions, goals and strategies to meet such goals. This would constitute the Newark Bay s waterfront plan. Developing a plan is easy; implementing it is hard. There are usually losers and winners. This partnership must work in a way that everyone is a winner and everyone shares in the prosperity and in the credit for success. The

professional lead s expertise in facilitating discussions and building consensus will be critical.

In preparing the Newark Bay waterfront plan, the discussions amongst the partnership participants should be centered on potential and opportunities for this community based on its assets and needs. The discussions and ultimate plan should focus on balancing the economic, environmental, port and quality of life needs. The appropriate locations for various land uses must be part of this plan. The location of industrial activities would be an easy determination as both Newark and Kearny have dedicated the Newark Bay waterfronts for industrial use. If it is determined that recreational activities are a desired and appropriate use on the waterfront and waterways, then discussion of how those activities can safely co-exist with port operations would be necessary followed by designation of appropriate areas for such uses. If, for instance the Port Authority indicates that port-related businesses that include tugs and barges are essential for keeping Port Newark and Elizabeth-Port Authority Marine Terminal operations efficient and effective, discussions on the appropriate locations for such activity must ensue. Perhaps the consensus of the partnership participants may be that the presence of tugs and barges on the Newark Bay shore is not desired. If the partnership is truly working together for the common good, and understanding that tugs and barges are essential components of an operating port, a representative may offer a site within its municipality further up the Hackensack River or Passaic River or down the Arthur Kill that would be suitable for this port-related activity.

There are several critical keys to successful implementation of the Newark Bay waterfront plan. The first is that each participant agrees to the plan and believes that his or her municipality or agency will benefit. As necessary as it is to participate in this partnership without a myopic view or agenda, the reality is each participant represents an agency or a municipality and must be able to sell the plan and ultimate strategies to its constituents. While there will be compromises, there have to be "wins" for everyone.

A second key to success is development of strategies and concrete actions to implement the plan. To that end, the partnership should be flexible enough to form subgroups around common themes. For instance, the Port Authority favors industrial development near the port that supports port activities. Newark and Kearny's master plans designate Newark Bay waterfront for industrial development. Kearny's Mayor Santos and Newark's Councilman Amador echoed this sentiment. Forming a subgroup around the theme of industrial development would provide a forum for discussion and collaboration amongst the relevant stakeholders including the Port Authority, the Newark and Kearny governments and relevant advocacy groups, such as the New York Shipping Association and the National Association of Industrial and Office Properties (NAIOP). As depicted in Figure 14.1, this subgroup would also include the appropriate regulatory agencies that can provide guidance early in the planning process as to what actions need to be taken to obtain necessary clearances and approvals; brownfields remediation would certainly be a critical topic that requires NJDEP input. This forum for cooperation may generate ideas

on the types of industry and businesses that would be mutually beneficial. The subgroup may determine that pooling their financial and technical resources would be an effective strategy for cleaning up brownfields and getting the land primed for redevelopment and in generating a marketing strategy to attract new businesses. The subgroup may also determine that instead of each city attempting to attract the same types of industry and businesses to locate within their respective borders thereby having competing businesses, a better strategy would be to ultimately permit different but complementary industries and businesses within each city. This approach would be incorporated into the marketing strategy developed by the subgroup for the Newark Bay industrial area (not Newark's industrial area or Kearny's industrial area). This approach would result in several "wins". The Port Authority would win as industry and businesses needed to keep the port viable would locate in close proximity to the port. Newark and Kearny would win in that both cities would have prime waterfront real estate rid of contaminants and redeveloped with viable and non-competing businesses supported by the largest port on the east coast. Figures 14.2 and 14.3 show other types of subgroups that can be formed around common themes.

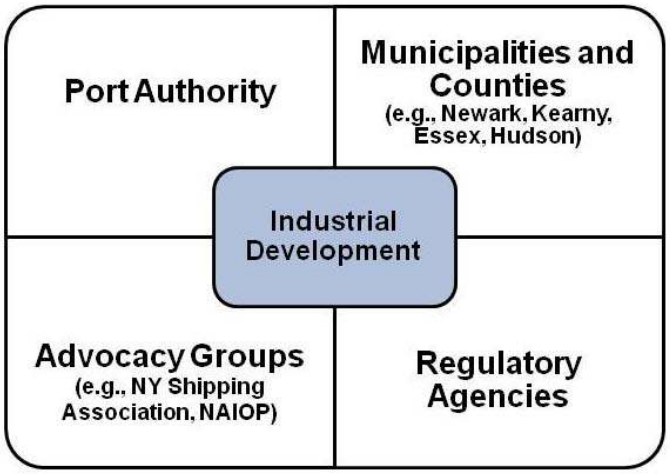

Figure 14.1 Industrial Development Subgroup of the Newark Bay Partnership.

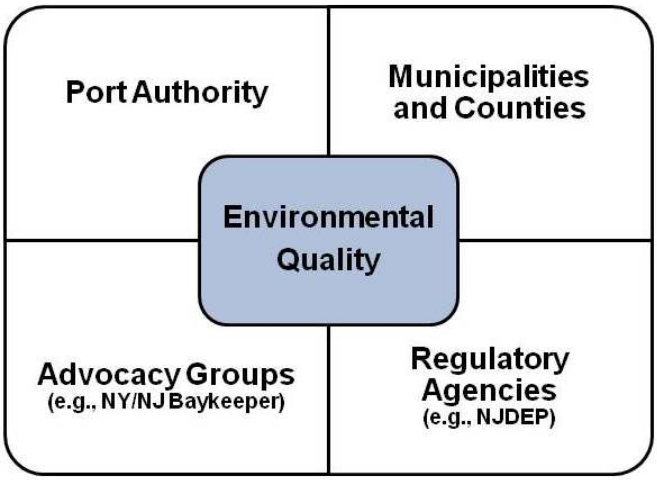

Figure 14.2 Environmental Quality Subgroup of the Newark Bay Partnership.

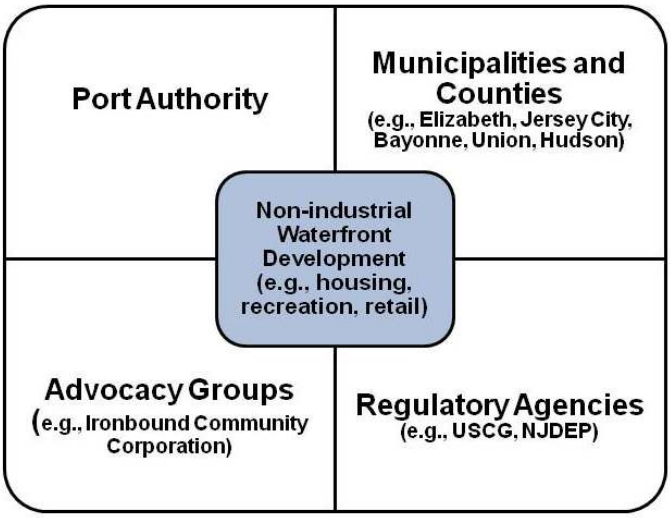

Figure 14.3 Non-Industrial Waterfront Development Subgroup of the Newark Bay Partnership.

Another key to success is the development of programs to help implement the plan. Funding is a critical component to successful redevelopment as well as environmental cleanup and ecological preservation. A responsibility of the partnership's technical staff would be to identify a variety of funding sources (federal, state and private) that can be used for important activities such as brownfields remediation, open space preservation and public education. The staff would also be proficient in preparing the necessary applications to obtain such funding for the partnership stakeholders facilitating their ability to implement vital elements of the plan.

Redevelopment for nonindustrial and industrial uses, port activities and environmental responsibility can coexist on Newark Bay but they must be part of a holistic planning approach, one that considers the Newark Bay area as a community. If the Newark Bay stakeholders can agree to place the Newark Bay community ahead of their political and agency agendas, move past their contentious port-city relationships and dedicate honest and hard working efforts toward a common effort, then the goals of harmonious land uses, economic vitality, and improved quality of life are attainable.

APPENDIX

INTERVIEW QUESTIONS

This appendix contains the questions used for interviewing representatives from the municipalities, county government, advocacy groups, state agencies, and business owners.

INTERVIEW QUESTIONS FOR MUNICIPAL REPRESENTATIVES

Topic: Relationship to Port Newark Elizabeth Marine Terminal

- In general, what do you feel is the role of Port Newark Elizabeth Marine Terminal to the local, regional and national economy?

- Spatial relationship:
  - Is land within the municipal boundaries being used for port operations or expansion? Are there plans for lands within the municipal boundaries to be used for port operations or expansion? What is the municipal government s involvement with these plans?
- Functional relationship:
  - Does the municipality provide any services that support the operations of the Port (i.e., access to waterway, facilities, fire police protection)?
  - Are transportation connections and or transportation improvements being made within the municipal boundaries that would serve the Ports needs? What is the municipal government s involvement with these plans?
- Economic relationship:
  - Does the municipality reap any monetary benefits from port activities (i.e., taxes, PILOTS, increased property values)?
  - Does the municipality provide any financial support for port activities?
  - Is land within the municipal boundaries being used for port related businesses (such as warehouse distribution centers)? Are there plans for lands within the municipal boundaries to be used for port

  - related businesses? What is the municipal government's involvement with these plans?
- Political relationship:
  - Does the Port Authority discuss plan for port operations and/or expansion needs with your municipality?
  - If the municipality has concerns regarding port operations and plans, how does the municipality express those concerns and to whom are they expressed? Has the Port Authority responded to such concerns and what was the response?
- Societal relationship:
  - Do residents of your municipality work at Port Newark/Elizabeth Marine Terminal?
  - Do the operations of Port Newark/Elizabeth Marine Terminal present any environmental concerns to your municipality? Have these concerns been expressed- to whom? What was the result?
  - Is your municipality concerned with safety and security issues regarding port operations? Have these concerns been expressed- to whom? What was the result?

- Do you feel that Port Newark/Elizabeth Marine Terminal is a good neighbor to your municipality- why or why not?

Topic: Development of waterfront properties within your municipality

- Is your municipality planning for the redevelopment of the waterfront on Newark Bay? Does this redevelopment involve converting properties from historically industrial use to non-industrial uses? Where are these properties and what are the planned uses?
- Are there any organizations, associations or community groups involved in waterfront redevelopment activities?
- Do you know of any land use conflicts that have arisen or may arise between operation/expansion of Port Newark/Elizabeth Marine Terminal and redeveloping waterfronts on Newark Bay? What is being done to resolve/avoid such conflicts?

INTERVIEW QUESTIONS FOR COUNTY PLANNING REPRESENTATIVES

- Is your county government involved in redevelopment activities on the Newark Bay waterfront? What is the nature of this involvement?
- Is your county government involved in activities relative to the operations/expansion of Port Newark/Elizabeth Marine Terminal? What is the nature of that involvement?

- Is your county government involved in activities that promote the location of port related businesses near the port? What is the nature of that involvement?
- Do you know of any land use conflicts that have arisen or may arise between operation/expansion of Port Newark/Elizabeth Marine Terminal and redeveloping waterfronts on Newark Bay? What is being done to resolve/avoid such conflicts?
- What regulatory mechanisms are in place for public access to the water (Hudson River and Newark Bay)?

INTERVIEW QUESTIONS FOR THE ADVOCACY GROUPS

- What is your association's involvement regarding the redevelopment of waterfront properties on Newark Bay?
- What is your association's involvement regarding the operations/expansion of Port Newark/Elizabeth Marine Terminal?
- What is your association's involvement regarding the improvement of infrastructure (i.e., transportation) that support operation of Port Newark/Elizabeth Marine Terminal?
- Do you know of any land use conflicts that have arisen or may arise between operation/expansion of Port Newark/Elizabeth Marine Terminal and redeveloping waterfronts on Newark Bay? What is being done to resolve/avoid such conflicts?

INTERVIEW QUESTIONS FOR THE STATE AGENCIES

- What is your agency's responsibilities regarding the redevelopment of waterfront properties on Newark Bay?
- What is your agency's responsibilities regarding the operations/expansion of Port Newark/Elizabeth Marine Terminal?
- What is your agency's responsibilities regarding the improvement of infrastructure (i.e., transportation) that support operation of Port Newark/Elizabeth Marine Terminal?
- Do you know of any land use conflicts that have arisen or may arise between operation/expansion of Port Newark/Elizabeth Marine Terminal and redeveloping waterfronts on Newark Bay? What is being done to resolve/avoid such conflicts?

INTERVIEW QUESTIONS FOR THE BUSINESS OWNERS

- What is your company's involvement with the Port of New York and New Jersey?
- From the perspective of a business owner, do you anticipate conflicts between redeveloping waterfront properties and the operating port?

INTERVIEW QUESTIONS FOR THE PORT AUTHORITY OF NY&NJ

Topic: Relationship to Five Newark Bay Municipalities

- What is the relationship of the Port Authority with each of the following municipalities: Newark, Elizabeth, Jersey City, Bayonne, and Kearny?

- Spatial relationship:
  - Where is Port Authority owned/leased property within these municipalities? What facilities are on these properties?
  - Does the Port Authority have plans to expand its port operations within these municipalities?
  - Is land within the municipal boundaries being used for port related businesses (such as warehouse/distribution centers)?
- Functional relationship:
  - Are transportation connections and/or transportation improvements being made within the municipal boundaries that would serve the Port's needs? What is the Port Authority's involvement with these plans?
- Economic relationship:
  - What are the Port Authority's economic ties to the municipal governments?
  - Is the Port Authority actively involved in promoting the locating of port related businesses within these municipalities? What is the municipal government's involvement with this activity? Does the PA discuss its need for port related business near the Port with these cities? Have they planned together to attract such businesses?
- Political relationship:
  - Does the Port Authority discuss/plan for port operations and/or expansion needs with the municipalities?
  - Have municipalities express concerns regarding port operations to the Port Authority? How does the Port Authority respond to such concerns?
- Societal relationship:
  - Is Port Newark/Elizabeth Marine Terminal a good neighbor to these cities? Would the cities agree?

- Do the operations of Port Newark Elizabeth Marine Terminal present any environmental concerns to the municipalities? Have the municipalities expressed such concerns to the Port Authority? What is the mechanism for expressing such concerns? What was the result?
- Are municipalities concerned with safety and security issues regarding port operations? Have the municipalities expressed such concerns to the Port Authority? What is the mechanism for expressing such concerns? What was the result?
- Are citizens from these municipalities employed at Port Newark Elizabeth Marine Terminal?
- How does the PA handle requests from municipalities who want the PA to fund construct community amenities as retribution for negative community impacts?

- Does the Port Authority feel these municipalities acknowledge the role of Port Newark Elizabeth in the local, regional and global economy? What makes you think that?

- Does the Port Authority feel that these cities have a responsibility to support port growth with lands for expansion, improved transportation systems, and enticements for port related industry within the municipal boundaries?

Topic: Plans

- Has the port developed any plans (economic, port expansion, redevelopment, etc) for the port region as a whole or any portion of my study area?

Topic: Waterfront redevelopment Conflicts

- Are any of these municipalities redeveloping their waterfronts for industrial uses? Which ones? Does the PA have any influence involvement with this redevelopment?

- Do you know of any land use conflicts that have arisen or may arise between operation expansion of Port Newark Elizabeth Marine Terminal and redeveloping waterfronts on Newark Bay? What is being done to resolve avoid such conflicts?

- Is there a port organization similar to the Port of San Diego s Working Group proposing land use buffers, purchasing property to avoid rezoning and redevelopment, and or educating the public and elected officials on the economic validity of the port? If so, have they been successful in any of their ventures?

- Is the Port Authority collaborating with any of the Newark Bay municipalities in regards to port interests vs. waterfront redevelopment interests?

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