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Lower Manhattan and the East River: an investigation into the renewal of the Lower East Side waterfront

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

LOWER MANHATTAN AND THE EAST RIVER: AN INVESTIGATION INTO THE
RENEWAL OF THE LOWER EAST SIDE WATERFRONT

A thesis submitted in partial fulfillment of the
requirements for the degree of
MASTER OF ARCHITECTURE

by

Todd A. Edge

2001

To: Dean Juan Bueno
School of Architecture

This thesis, written by Todd A. Edge, and entitled Lower Manhattan and the East River: An Investigation into the Renewal of the Lower East Side Waterfront, having been approved in respect to style and intellectual content, is referred to you for judgement.

We have read this thesis and recommend that it be approved.

Luke McGregor

Marilys Nepomechie

Camilo Rosales, Major Professor

Date of Defense: December 13, 2001

The thesis of Todd A. Edge is approved.

Dean Juan Bueno
School of Architecture

Dean Douglas Wartzok
University Graduate School

Florida International University, 2001

DEDICATION

I dedicate this thesis to my family, for without their support and love this work would not have been possible. I would also like to dedicate this work to all of the families who lost loved ones during the September 11, 2001 attacks on the World Trade Center Twin Towers.

ACKNOWLEDGMENTS

I wish to thank the members of my committee for their guidance, support, and influence. Professor Camilo Rosales has been a major influence on my architectural studies and theories. Professor Marilys Nepomechie has been equally involved in directing me through the early design phases and always pushing me for more. I will always look to and respect these two individuals as I one day hope to be their equal. Lastly, I cannot forget to thank the third member of my committee, the engineer who always said 'no', Luke McGregor. Working with a structural engineer is always a challenge for an architect, and even more so for an architectural student, but Luke made this thesis fun and kept me going with his jovial attitude.

ABSTRACT OF THE THESIS

LOWER MANHATTAN AND THE EAST RIVER:
AN INVESTIGATION INTO THE RENEWAL OF THE LOWER EAST SIDE
WATERFRONT

by

Todd Edge

Florida International University, 2001

Miami, Florida

Professor Camilo Rosales, Major Professor

With the mid-20th Century construction of an elevated highway along Manhattan's East River, the declining neighborhood of the Lower East Side was removed from its waterfront. As cities begin to re-examine their edges, I feel it is appropriate to address the issues of the Lower East Side community and its former riverfront. Utilizing the recent developments in Manhattan, London, and Chicago as a basis for determining how metropolitan areas are attempting to reconnect with their shores, a set of questions were developed, analyzed, and then applied to the Lower East Side. With the analysis of these questions providing the groundwork for the project, the main concern turns to the elevated highway that has cut through the community along the water's edge. There are three possible solutions for the future of this 'wall' in order to reconnect the Lower East Side with the East River. The first two solutions examine the idea of demolishing the elevated FDR Drive in favor of subterranean or surface streets. The other solution examines the possibility of redesigning the existing elevated highway. In the end, the project focuses on an urban design and planning program that re-establishes the connections between the community and the waterfront.

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Introduction to Waterfronts

With the mid-20th Century construction of an elevated highway along Manhattan's East River, the declining neighborhood of the Lower East Side was removed from its waterfront. As cities begin to re-examine their edges, I feel it is appropriate to address the issues of the Lower East Side community and its former riverfront. By utilizing the recent developments in Manhattan, London, and Chicago as testing models, I will analyze the possibilities and determine a means of reconnecting the Lower East Side community to its once thriving waterfront.

Whether a sea, a river, or a bay, water has helped to define cities since the dawn of civilization. History cites several examples such as the early civilizations along the Nile, Tigris, and Euphrates Rivers, from the Greek and Italian merchants on the Mediterranean Sea to the Spanish, Dutch, and British explorers worldwide. Waterfront settlements not only attract commerce, but also people and hence, community. For generations, people living along the waterfronts throughout the industrialized world have had the opportunity to experience their city's growth first-hand. As time has changed, so has the waterfront. What may have been a busy merchant port or fishing village may now be an empty site, or worse, a derelict slum. With the inventions of the automobile and the airplane, cities (and corporations) have become less dependent on shipping. Couple this with other advancements in technology and the ensuing development translates to a decline in waterfront commerce. Followed shortly thereafter by a decline in the surrounding communities. What was once a busy port bordered by a prosperous neighborhood, could easily become a slum with an abandoned waterfront.

Recently, cities have begun to re-examine their shorelines, treating them with renewed interest. New uses for old piers have brought new life into these areas of the city. Waterfronts are not necessarily seeing the creation of new businesses, however, that is one example of redevelopment. Aside from historical and maritime preservation, cities are turning to their waterfronts for recreation, and upscale or mixed-use building projects. Still, for some cities, questions remain—not so much the where and when, but the how and why. Why would popular cities like New York, London, and Chicago want to redevelop their waterfronts? How have they, and what does the future hold for these cities by the water? What about the placement of people and services, and the historical yet still evident problem of overcrowding? No doubt these typically urban questions will develop into additional questions, and in the end, the reasoning for waterfront revitalization will become evident. This renewal and in some cases, expansion, is the “best current example globally of the resilience of cities, of their ability to adapt to changed circumstances, to adjust to new technological impacts, to seize opportunities and to forge new images for themselves, as well as to create new or altered neighborhoods for their inhabitants”.¹

History and Development of the New York Waterfront



Figure 1:

One of the most famous skylines and waterfronts in all the world...Manhattan

As the town on the southern tip of Manhattan grew (see figure 2), the port became its heart. The East River waterfront became focused on shipping and commerce. As the waters became lined with merchant vessels, the land became engrossed with those closely linked to the industry—ship’s workers and other associated industries (including taverns) set-up their shops all along the waterfront. The New York waterfront prospered, and this prosperity spread through the small port town that was so closely linked to it. Not even the periods of war could stop its growth. During Great Britain’s war with the French and Indians, the Hudson River became the main artery for British ships and New York’s merchants grew immensely rich.⁵ Although the war’s end would greatly decrease the colony’s businesses, taxation would lead to its revolt. As New York joined the rest of the American colonies, the Revolutionary War did not hurt the port city like the rest of the colonies. New York was generally regarded as a Tory⁶ haven.

Although most of the inhabitants...suffered a good deal during the war, a portion of the population grew richer than ever because commercial activity did not cease. British soldiers needed goods and services, and enterprising merchants profited by supplying the British military establishment and carrying on trade with unoccupied portions of British North America... There were still other hardships... Cut off from its normal suppliers... New Yorkers cut down shade trees for fuel, houses decayed, and farms were left in disarray... Because of the continuation of trade, military and otherwise, during the Revolution, at war’s end the wharves, warehouses, and other accoutrements of commerce, most of which were on the east side of the city, were intact and in good repair... and by 1788 [NY] had rebuilt its burned-out area, added considerable population, and was once again the profitable commercial center it had been prior to the hostilities.⁷

Topography and location, obviously the key elements of any waterfront city, have been taken full advantage of by the City of New York. Since its inception, New York, particularly the island of Manhattan, has always been unique. New York (New Amsterdam to the first settlers from the Dutch West India Company) was founded as a business colony, not as a religious settlement like the other colonies.² New York, its people, and its waterfront have been intricately linked from the first Dutch trading post to a thriving port to the financial ‘dock’ of corporations throughout the world. What began in the year 1621 as New Amsterdam, a Dutch settlement and port, became the English town of New York in 1664.³ As the English surpassed the Dutch in world trade; New York became a key maritime entity. “By 1740, New York had become the third largest port in the British Empire, second only to Philadelphia and London itself.”⁴

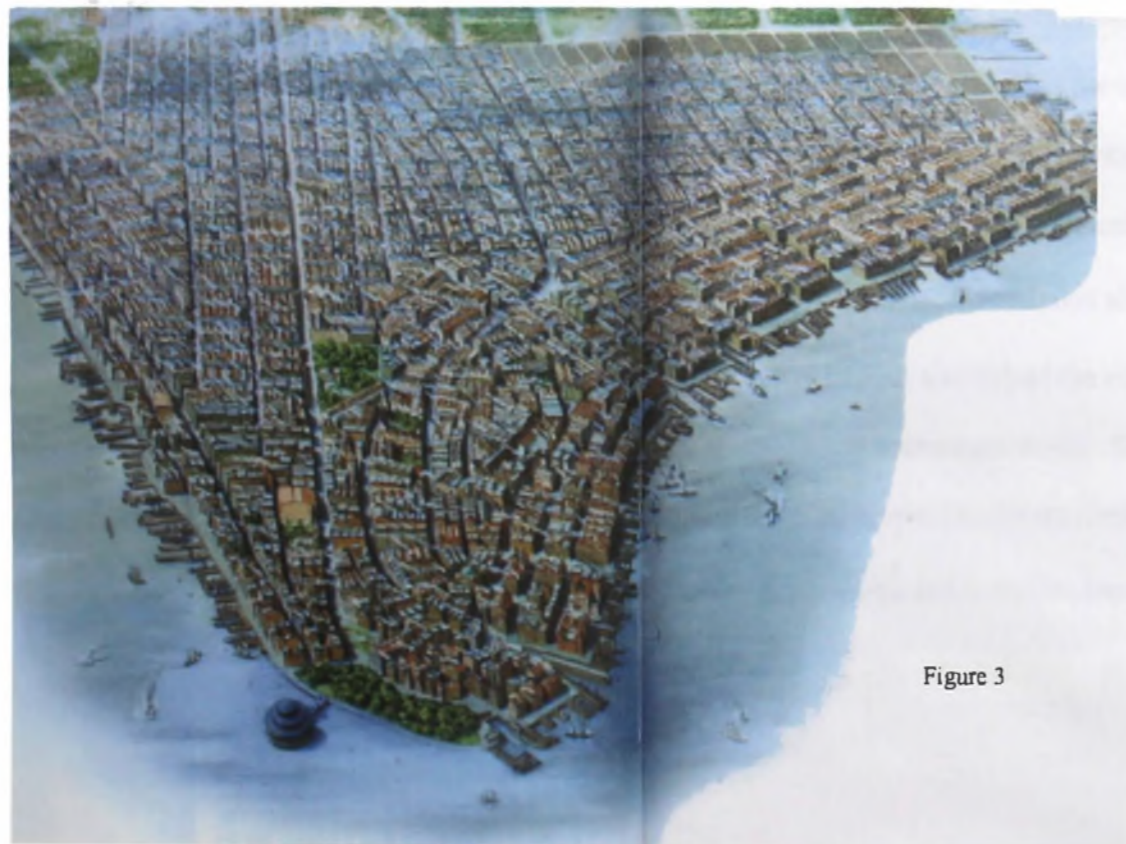


Figure 2
New York 1766

Although slow and troubled at first, post-war trade returned to its lucrative prewar status. British sentiment towards the American colonies led to trade and shipping restrictions, however, New York did well by finding new trading patterns and partners, especially in the Far East. The expansion of trade and increase in manufacturing were central to the city's growth.

The early 19th Century saw three pioneering innovations that would forever put the New York waterfront at the world's helm. Robert Fulton powered the world's first steamboat off the west side of Manhattan in 1807.⁸ This event ended the sailor's dependence on the wind. Shortly thereafter, young Cornelius Vanderbilt of Staten Island purchased a used sailboat and, though mocked at first, set-up his own ferry service to Manhattan thus marking the start of the greatest shipping empire in the world.⁹ The third event occurred in 1817, when the Black Ball Line started with a simple idea that would completely reform worldwide commerce. Their regular route of New York to Liverpool to New York was not unique, but their promise to sail full or empty at regularly scheduled intervals, month-in and month-out, was the first scheduled maritime departure in history and led to the world's first true shipping line.¹⁰

A short time thereafter, more businesses would come to New York, and ships were coming and going on a weekly basis. No port could match New York, which out-shipped all of the other East Coast ports—combined! Regular schedules, high quantities, and numerous foreign destinations turned the two-mile stretch of piers and shipyards along the South Street waterfront into the 'street of ships'.



The Manhattan side of the East River was not the only bustling realm along New York's waterfront. The Hudson River side, especially the area now known as the Battery, was the location for the growing immigration. Smaller trade ships also used the Hudson River for northern trade. Meanwhile, the Brooklyn side of the East River became a holding area for ships trying to access the piers and docks off South Street. "In 1840, there were sixty-three wharves on the East River, and fifty on the Hudson. Docking facilities were beginning to develop in Brooklyn and Jersey City" (refer to figure 3).¹¹

As steamer lines and clipper sailing ships raced each other out of New York and back, to and from ports all over the world, ship designers and builders were busy searching for sleek designs and larger volumes. As the population of Manhattan grew, so did the ferry services of the other boroughs and New Jersey. Likewise the goods and wares found on New York's docks and piers had to make way for a new business—passengers. While immigrants were trying to get into New York, the socialites of America and Europe wanted to 'see the world' and visit the exotic ports of call that brought

them their fascinating fashions. Vessels traveling under the Collins line, the Cunard line, and others, not only carried goods and passengers to and from the Manhattan waterfront; they also built there. From new ships to new piers and headhouses, pleasure travel quickly became a profitable side business for many shipping companies who in turn added to Manhattan's collection of harbor structures. The famous White Star and Holland-America lines would later enter New York's waters, jockeying for space.

However, innovation can sometimes lead to downfall. During the mid-to-late 19th Century, New York's entire shipping industry began to decline. The American West became the main interest of the people, and the ability to take a train coast-to-coast was not only quicker, but also usually safer. All the while, economic factors were working against the shipping industry. As the country became self-sufficient, the public's attention was turning towards the frontier.¹² As industrialization and manufacturing grew in New York, it pushed the shipbuilding industry out of Manhattan. As the port became less active and the yards emptied, other businesses linked to the shipping industry were also weakened. This decline along the waterfront would unfortunately spread inward and affect the communities that were closely linked to the industry. Many people moved westward, following the frontier, while others moved northward to be with their affluent friends in the wealthier Upper East and Upper West Sides. With this, a 'new' people moved into the areas left open—a poor, immigrant population, many of whom settled into the Lower East Side and Lower Hudson areas.



Figure 4

Showing the growth of Lower Manhattan.

Yet, all was not lost. Although merchant trade and shipping were changing, new businesses found the waterfront advantageous. Renewed interest in the deep water dockage available along the Hudson River (refer to figure 4) made this the favored area for the new cruise ships, whose lines built terminals on Manhattan's 'new' West Side. Enough complaints about the conditions of the docks and piers, the terrible odors, the squalid garbage-laden water, and the damaged bulkheads led to the creation of several commissions and committees. The Docks Commission and the New York Harbor Commission helped to reshape Manhattan's waterfront and recommended permanent pier and bulkhead lines. Along with the desires to clean-up the waterfront and maintain clear waterways at the urging of the shipping and passenger lines, the Harbor Commission also established "the State Pier and Bulkhead Lines, beyond which no further construction could take place".¹³ This creation of new piers and bulkheads also helped the city to grow northward. The new steam powered railways, likewise, aided this growth. With improved public transportation, new areas of the city became accessible. One's social status and place of residence were linked to income, occupation, and ethnicity. With more areas of the city opening-up and expanding Manhattan northward, greater housing choices developed. Following this, "[t]he sad condition of dwellings, the polluted water supply, public health crises, increasing crime, and inadequate schools were the most obvious of the matters that received attention," as the new people arrived.¹⁴

As more immigrants poured into New York, they moved into the areas once occupied by the upper and middle classes. Real estate investors bought the old mansions and other buildings, turning them into boarding houses and such. Any form of structure that was able to be converted, became rental space. These slum properties became the earliest tenements and were occupied by the poor. Additional tenements were constructed and areas of southern Manhattan and the Lower East Side developed into slum housing. With no end to the population explosion, primarily due to the influx of immigrants, housing for the poor consumed lower Manhattan turning former merchant owned estates and homes into tenement apartments.¹⁵ Due to its close relationship with the waterfront, neighborhoods like the Lower East Side presented opportunities for some immigrants. Although the industry had fallen from its peak, there was still some work. German, Italian, and Irish newcomers settled into the Lower East Side and worked the South Street Docks that the more affluent New Yorkers left on their move northward. These enterprising immigrants also opened their own little shops in the community, some even worked directly from their apartments, offering such services as knife and scissors sharpening to seamstress and dress-making.

The city as a whole, continued to grow and change, as did its waterfront. The City Dock Board, also known as the Dock Department, was created in the late 1800's. With exclusive control over all waterfront property (slips, piers, bulkheads, etc.), the Dock Department was also in charge of all waterfront planning—a first for New York. Designs of new, quality piers and terminals as well as the sanitation situation, were the key elements of work for the new department. Proposed waterfront changes also brought about the need for improved living and housing conditions. The downtown and waterfront homes of former merchants and other affluent people were now just the run-down, over-crowded boarding houses of the poor. As New Yorkers moved uptown, tenements rapidly dotted the landscape they left behind. Many looked at the redesigning of the waterfront as a means of relieving the congestion and ills of the slums. Still others looked for complete slum removal. Even the creation of open public spaces (Central and Riverside Parks) for recreation and 'breathing' space was alien to the waterfront, since the entire waterfront was to be used for commerce (refer to figure 5).¹⁶

Figure 5:

Typical waterfront activity along New York. Goods lying about, mostly unprotected, vessels jammed into the docks, and neither open nor recreational spaces.



While all the planning and designing led to ambitious strategies, little was actually constructed. In reality, New York's waterfront had *fewer* piers due to the demolition during the new bulkhead creation. As New Yorkers and their activities pressed further north, the few piers in the Chelsea area were filled with commotion. Yet the liners and trade ships still preferred the South Street dockage in the East River instead of traveling up the Hudson River. New plans for areas of Chelsea were meant to attract the passenger liners. However, future planning clashed with the then current reality—bigger and longer ships were constantly being introduced and the just under construction facilities were not large enough, and hence, obsolete before they could be used. Proposed 1903 plans for one thousand-foot piers at Chelsea met with opposition from the Dock Department on excavating the filled land since it would increase traffic congestion. Extending the piers further into the Hudson was rejected by the War Department, which feared the longer piers would narrow the river too much

and make passage unsafe. The Mayor of New York, in 1904, used a proactive approach and along with a civic beautification project, created a committee “to make the city more convenient and attractive”.¹⁷

Its charge was to gather in one place the most practical of the piecemeal proposals for the betterment of the city and to form them into a unified plan. Included were schemes for bridges, parks, widened thoroughfares, and civic centers. For the Chelsea waterfront, the “New York City Improvement Plan” was a well-timed public relations document...the commission cited the Chelsea improvement as an example of “a unified design and construction” that would create “harmony and symmetry” and a “waterfront with an architectural appearance worthy of the city”.¹⁸

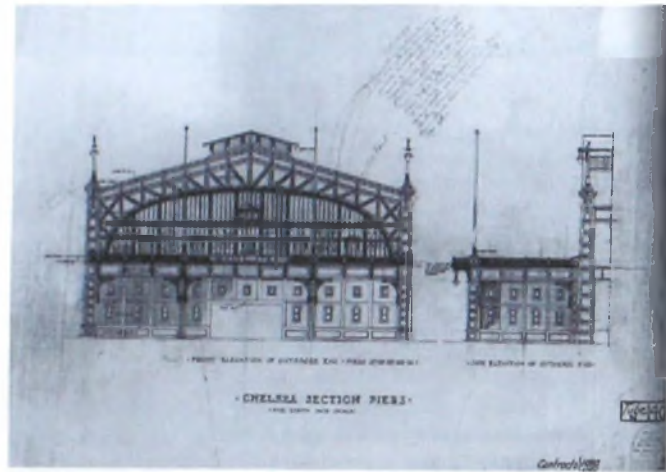


Figure 6



Figure 7: Photo of Chelsea Piers construction.

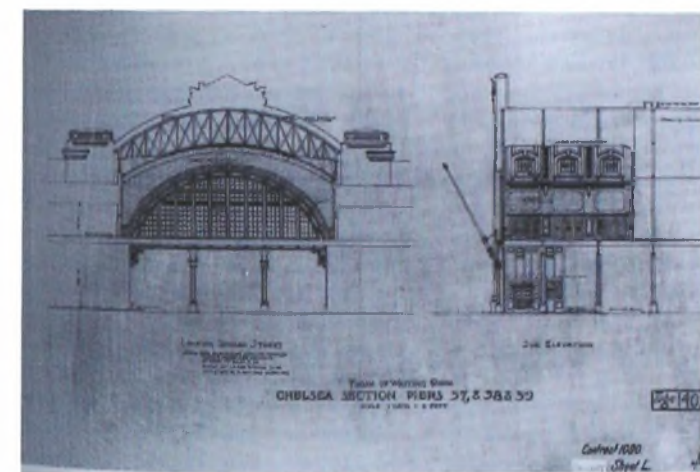


Figure 8

While many parts of the Mayor’s plan were put aside, the Chelsea project was a success. Figures six and eight (above) detail the elevation and sections of the piers, while the photo (c. 1909) shows the piers under construction. Fortunately, neither financial nor legal predicaments would force the project’s abandonment. Instead, subsequent decades would find the Chelsea Piers home to the ‘queens of the sea’. The Chelsea project made an area of the waterfront more hospitable for a select few, showcasing both public pride and civic enhancement in the early twentieth century.¹⁹ Chelsea would become home to the Cunard line, with such notables as the *Lusitania* and later the *Queen Elizabeth 2*. Over the years, other cruise lines would make the Chelsea piers their boarding point.

Figure 9:

View of Manhattan from Brooklyn during the construction of the Brooklyn Bridge.



Decline of New York's Waterfront

A series of events that would forever change New York, and ultimately its waterfront, took place during the late 19th Century to early 20th Century. First, the railways crossed the rivers to Grand Central and Penn Stations. The rail industry would lead to first the elevated trains (“els”) and later to the (now) infamous subway system. Building and bridge construction, like that in figure nine, marked Manhattan’s entry into what would become the ‘skyscraper craze’. Immigration increased, as did congestion. The invention of the automobile would not only add to the traffic but also change how roadways would be conceived and built. This was a point in history that would change the face of New York’s waterfront, especially in areas like the Lower East Side.

Even though cruise travel was still a viable industry, waterfront decline was forthcoming. Commercial shipbuilding had already moved from New York and an increase in foreign registered vessels meant less business for the American shipping industry. A second outbreak of Cholera took place along the East River and lower Manhattan docks, transported by immigrant ships. The poor living conditions and lack of fresh water in the immigrant communities also allowed for many diseases to flourish. Quarantines and other measures decreased the number of immigrants, which in turn decreased business for those American companies that transported

them. Several transports went bankrupt. While World War I would bring about an increase in shipping and immigration, it also brought about fear, seizures, and sinkings. Most notable of the war calamities was the German sinking of the *Lusitania*. American ships were either seized or sunk along with British, French, and Italian vessels. Additionally, bombs and explosions in New York's ports led to the creation of the New York Police Department Bomb Squad. A German terrorist ring was ultimately found responsible for manufacturing bombs and attaching them to ship's rudders as they sat 'safely' docked.

As Germany renewed its submarine campaign in 1917, the New York waterfront was greatly disrupted. Sailings were cancelled, industrial and shipping activity halted, marine insurance skyrocketed—the Port was practically closed. As the United States entered the war, it seized many of the German and Austrian ships docked in New York, some of which were converted to supply ships for American forces. However, an even grander event took place in order for war preparation. “Shipbuilding was put on a mass-production basis; one of the largest shipyards in the country was in the New York area.”²⁰

The Port of New York became the recipient of millions of dollars in waterfront improvements and new piers. However, the war also burdened the Port. Rail congestion led to fuel shortages; freight cars packed the New York terminals waiting to be unloaded. The Brooklyn Naval Yards and the Army's Embarkation and Supply Base in South Brooklyn quickly became the points for the shipping of military supplies and forces to Europe. War's end saw a brief growth in activity at New York's piers. Embarkation became debarkation, and ocean travel became profitable for virtually any type of vessel. Nevertheless, the dream of America's return as the dominant merchant marine never developed—“Industry, not the sea, was now their consuming interest, and particularly was this true of New Yorkers, whose wealth was no longer derived directly from South Street.”²¹



Figures 10 & 11:
Brooklyn Naval Yards



Ironically, World War II would be a repeat for the New York waterfront. The passenger terminals on the Hudson River nestled the world's greatest passenger ships—*Queen Mary* and *Queen Elizabeth* of Britain, France's *Normandie*, and others. These ships, fearful of transatlantic crossings during the war, were either transformed at the New York piers into troop transports for the Allies, frozen in port until the war's end, or moved to the newly lucrative Caribbean Island cruise route. The Naval Shipyards in Brooklyn (refer to the images 10 and 11) were again expanded during the war. As the war effort lifted New York, and all of America, out of the Great Depression, the New York waterfront once again declined. New York City as a whole prospered greatly, and grew financially and physically to new heights. The waterfront however did not get its share of this prosperity.



Figure 12: Jamaica Bay

During the 1920's, the Dock Department began a modernization plan for New York's waterfront including the outer boroughs. Modern piers with new rail and mechanical devices were constructed during projects in Brooklyn, Queens, and Staten Island. The proposal at left was for Jamaica Bay. From this point in time through to the end of the Robert Moses era [addressed later], Manhattan's waterfront would lose vessel traffic to the surrounding areas. With the Dock Department creating eligible dockage throughout New York, the Upper East River of Manhattan was then lined with hospitals and apartment complexes. The Chelsea Piers and a few other transatlantic piers blocked the Hudson River, making the Northern Hudson waterfront inaccessible to trade.²²

With complaints blossoming from the New Jersey side of the Hudson, a bi-state agency was formed—the Port of New York Authority. Also known as the Port Authority, it was assembled to ease the static between New York and New Jersey, and therefore improve waterway and railway transportation. By 1925, the Port Authority was put in charge of bridge construction and took over the work for the Holland Tunnel. Fearing a potential rival, the Dock Department expanded, taking control of city airports (1929) and the city ferries (1938). In 1942, the Dock Department changed its name to the Department of Marine and Aviation.²³ Gradually, the Port Authority would either assume responsibilities or would be granted powers and duties taken away from the Dock Department. After a few more name changes, the Dock Department (a.k.a. Department of Ports and Terminals—1969, Department of Ports, International Trade and Commerce—1986, and lastly, Department of Ports and Trade—1989) was dissolved in 1991. “The decline in shipping on New York City's commercial waterfront and increasing irrelevance of the department in the development and implementation of waterfront plans made it superfluous... its remaining waterfront duties were assigned to the Port Authority.”²⁴



Figure 13
Current waterfront conditions that dot the once thriving docks off of Manhattan.



Figure 14

Figure 15
Current waterfront conditions found along the once thriving docks off of Brooklyn.



Figure 16



The Department of Docks can be credited with ultimately shaping the waterfront of New York City, in spite of the lack of a visible physical legacy (note figures 13-16). The department's work is said to still effect today's metropolitan environment. The department's ability to plan and implement is accredited to individual vision and will, with commitment to the plan being derived solely from its promotion of the waterfront's commercial potential. "The quantity of stereographs and postcards depicting New York City's cargo-laden piers and waterfront streets suggests that the public shared his belief in maximizing the economic viability of this area."²⁵ In the end, when commercial shipping in Manhattan collapsed, the plan was doomed to fail.

The decline of Manhattan's waterfront, in general, is not unique to New York. Various other ports and riverfront cities throughout the United States, as well as around the world, have had similar declines. For some the reasons may be identical, yet others may have slightly different rationales. This is not to be misunderstood however. The Port of New York continued to see an increase in passengers and trade. The ten largest passenger ships (1930 to 1940) would visit the port, repeatedly. During this period, the Port Authority "declared the Port to be 'the largest, most frequently used, and best-known port in the world'".²⁶ So as the Port of New York continued to prosper, the rest of Manhattan's waterfront was abandoned. South Street and the East River were no longer the spot for maritime activity. This unfortunate circumstance undermined the Lower East Side



community, which quickly became a slum. The Hudson River was the home of the vast Port of New York. Figure 17 illustrates the busy Port in 1957, when seven of the world's greatest cruise ships docked side-by-side.²⁷ Cunard's big three (*Britannic*, *Queen Mary*, and *Mauretania*) were typical sights, joined by vessels from France and Greece. With the development of transoceanic commercial jet travel, this era of cruise lines would end and within "three decades, only a single ship—Cunard's *Queen Elizabeth 2*—would be making regular crossings".²⁸ Air travel grew rapidly. Though the Port of New York remains one of the largest ports in the world, air travel helped decrease its traffic, as it did throughout the globe. Additionally, cruise travel found the year-round warmth of the southern United States and the Caribbean to be more profitable. Maritime structures from seawalls and basins to docks and wharves occupied practically every inch of the city's shore. During the Port's prime, the riverfronts witnessed the construction of thousands of harbor structures. Ironically, as "the city and the water met along an intricate, many-layered edge," the vertical gave way to the horizontal—a long, low city of railroad buildings, headhouses, industrial facilities, shanties, bars, and warehouses. This urban world was in and of itself a portal between the water and the metropolis.²⁹

Figure 17

The final devastating blow to Manhattan's various docks came in the 1960's. Standardization of train freight cars and containers led to specifically designed cargo ships, trains, trucks, and ultimately facilities. Containerization,³⁰ therefore, caused the construction of completely new piers and other structures that could not only handle the new industry, but also had the available land required for such vast undertakings. Brooklyn and New Jersey had the space and built new container ports, ending Manhattan's shipping industry. The covered piers, docks, and harbor structures along the city's shore became obsolete. Most were abandoned, others demolished, yet some were later replaced by redevelopment.³¹

Waterfront Rejuvenation in the Late 20th Century—South Street Seaport

The late 20th Century can be noted as a period when cities around the world took another look at their waterfronts. Many plans, schemes, and ideas were developed—some constructed and others shelved. The reasons for the renewed interest vary, from economic/financial to social/cultural to environmental. What has been true for citing redevelopment along Manhattan can be applied worldwide. In a time of deindustrialization of major cities, ports and their associated industries have moved away from city centers or have consolidated in other areas. Some industries have shifted to other cities. Likewise, advancements in technology, a rise in the middle-class and changing labor patterns in many countries has led to more leisure time.³² Open spaces combined with recreational facilities or commercial venues have seemingly become the norm for waterfront revival throughout America.



Figure 18: Pier 17. South Street Seaport

Commercialized Historic Districts, like South Street Seaport and the Fulton Market (see figures 18 and 19), were created by the Rouse Development Company and architect Benjamin Thompson. While the South Street Seaport has turned-out to be a success on the East River, drawing millions of tourists annually (as well as the locals nightly), repeated copies of it around the United States (and the globe) have only seen limited success. In fact, residents opposed and criticized South Street redevelopment for years, angered over the shopping mall rhetoric and non-historic significance. The residents of the Lower East Side are still critical of the project. Open spaces are without a doubt welcome anywhere in the city, but overcrowding is the issue they feel needs primary attention. Another point of contention is South Street Seaport's claim to be a historic district. Outside the historically registered buildings, the critics feel that Pier 17 does not accurately represent the South Street Piers that were once the center of the shipping world. Nor do they think the upscale, modern stores of Fulton Market and the yet to be completed "convention center and downtown meeting area"³³ represent the history of the seaport. Likewise, the Seaport Museum does little to offer a true look into the area's rich history, except for a few photographs, paintings, and tours of the *Ambrose* (whose history is not even linked to South Street), and the *Peking*, one of the Far East sailing ships. Nowhere is there evidence that the area was the shipbuilding district

during the 18th Century.³⁴ However, the added pedestrian path and bike esplanade along the river, plus the spectacle of the Brooklyn Bridge, have changed some opinions (as have the tourist dollars). Both sides of the argument are in agreement that the 1997 addition of the East River Bikeway and Esplanade is an important and exciting link. From Pier A in the Battery around the Wall Street and South Street Piers, the path skirts the Lower East Side, then continues northward through the East River Park and extends to 125th Street in East Harlem.

Supporters of the Rouse project view the Seaport and Fulton Market as a major success, bringing in tourist money to a formally depressed area of lower Manhattan. The question then becomes, does that money stay within the community or get passed-on to the parent companies of the up-scale shops? Additionally, New Yorkers are more concerned with inland improvements, interior commercial districts, residential blocks, and public spaces making the task of reclaiming New York City's forgotten edge a daunting one.³⁵ The Comprehensive Waterfront Plan of 1993, the first city-wide shoreline proposal, mandated public spaces and direct access to the water in new waterfront developments (i.e. figure 20).³⁶ While large scale projects typically went unbuilt, smaller ones were developed.

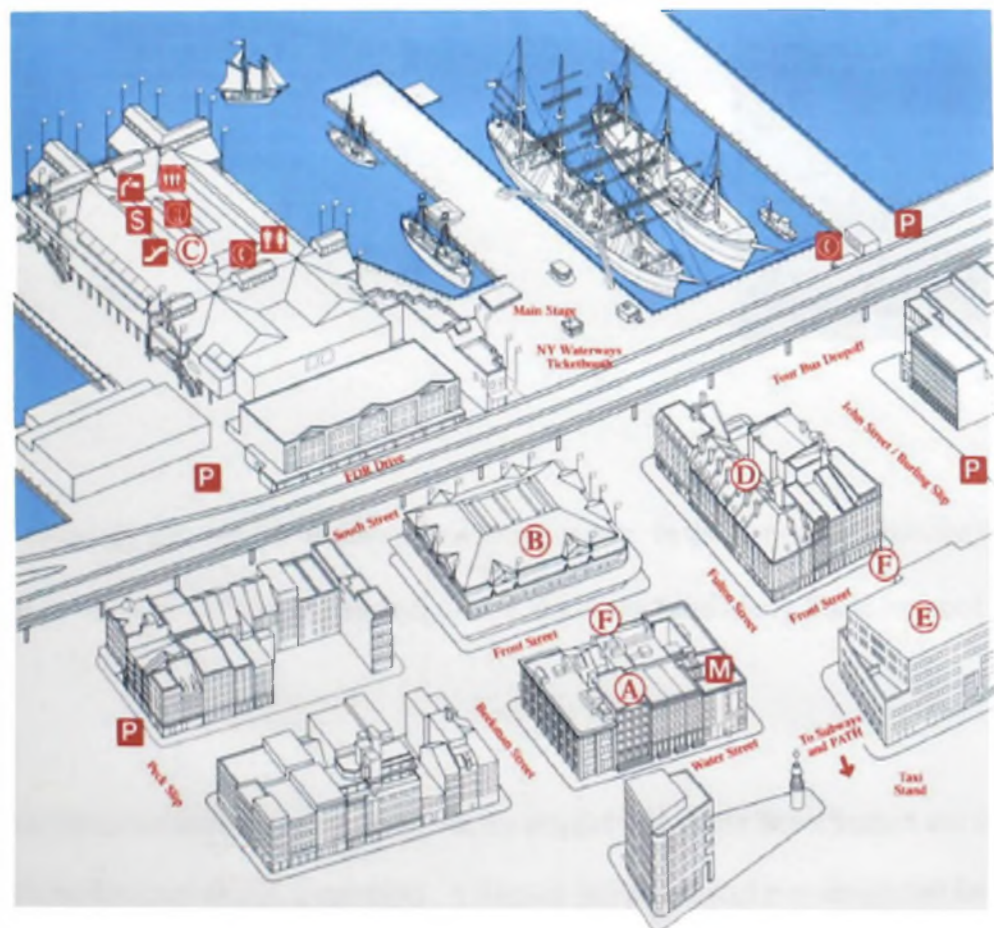


Figure 19



Figure 20: Along the Hudson River

Surprisingly ferry service has also seen a rebirth of late. In the glory days before the tunnels and bridges, one hundred twenty-five ferry lines operated along the Hudson River, the East River, and New York Harbor. By the late 1960s/early 1970s, only one ferry service, the Staten Island Ferry, could be found on New York's waters.³⁷ Today not only ferries motor along the Hudson and East Rivers, but also sightseeing and dinner cruise ships.

Manhattan's waterfront reinvestment has not stopped with South Street Seaport and the New York ferries. The Chelsea Piers have developed a strategy that is more sports and entertainment and less historic commercialization (read shopping complex). A formula that has worked in a city starved for sporting venues, the piers provide an amenity that the residents of New York can use and are a way of reconnecting them to the waterfront. Figure 21 shows the expansive complex that occupies the same piers that were home to the Cunard line and the transatlantic 'queens' (note the Golf Club pier in the distance of figure 20). Waterfront renewal seems to have a common underlying theme—one's desire to spend time along the water. Whether actively engaging the water or content to be along its edge, urban pleasure seekers will gravitate toward whatever body of water they live near, regardless of barriers and limitations.³⁸ Although the grand and architecturally interesting projects garner more attention, the biggest change among the urban waterfront currently is the creation of public spaces

As James Rogers cites in a recent publication on their work, Butler Rogers Baskett was tasked with creating a sports and entertainment complex that would bring vibrancy to the life of New York City³⁹. The interesting status and history of the Chelsea Piers became a challenge to the architects as well as the partnership (Chelsea Piers LP) that purchased the site. Originally the partnership approached the firm of Butler Rogers Baskett with the idea of developing a new ice-skating rink and facility at pier 61. To their amazement, that pier was linked to the entire complex (see figure 22) and the owner, the State of New York, would only rent the entire complex to private parties and only via a public auction. With luck, or maybe fate, the partnership won the site at auction and therefore set into motion the development of recreational facilities that focused more on the needs of children and young adults. In four short, fast-paced years, the architects developed the Chelsea Piers Sports and Entertainment Complex, as depicted in figure 23. This project, unlike any other to date, has “restored confidence in the viable success of commercial development of outdated, abandoned urban infrastructures, and has directly influenced the formation of other such projects”.⁴⁰ [Refer to Appendix A for additional project information.]

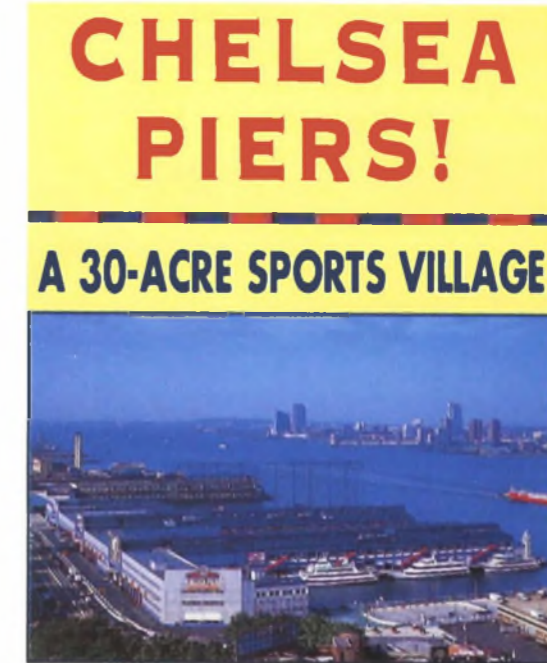


Figure 21: Chelsea Piers

Undeniably a financial success, do the Chelsea Piers connect with their surrounding communities? In general, they do, although they do not cater solely to the Chelsea neighborhood. The connection the Chelsea Piers make is to the community of Manhattan. Those who live close enough, can walk to the complex. Young adults tend to frequent it more, and others arrive easily by bicycle, subway, bus, and/or taxi. Certain programs and competitions (city, state, and national) draw participants and spectators from a variety of areas throughout New York and New Jersey. In this author’s opinion, the Chelsea Piers Sports and Entertainment Complex successfully fill a niche. By placing such a complex along the water, the project not only draws people to the water with various activities and relaxation spaces, but also allows them to participate in a variety of programs. There is a definite connection between the waterfront and the larger community, a connection that would not exist if the complex were completely interior-oriented and inward looking. Butler Rogers Baskett took advantage of the location while developing this project.



Figure 22: The Chelsea Piers

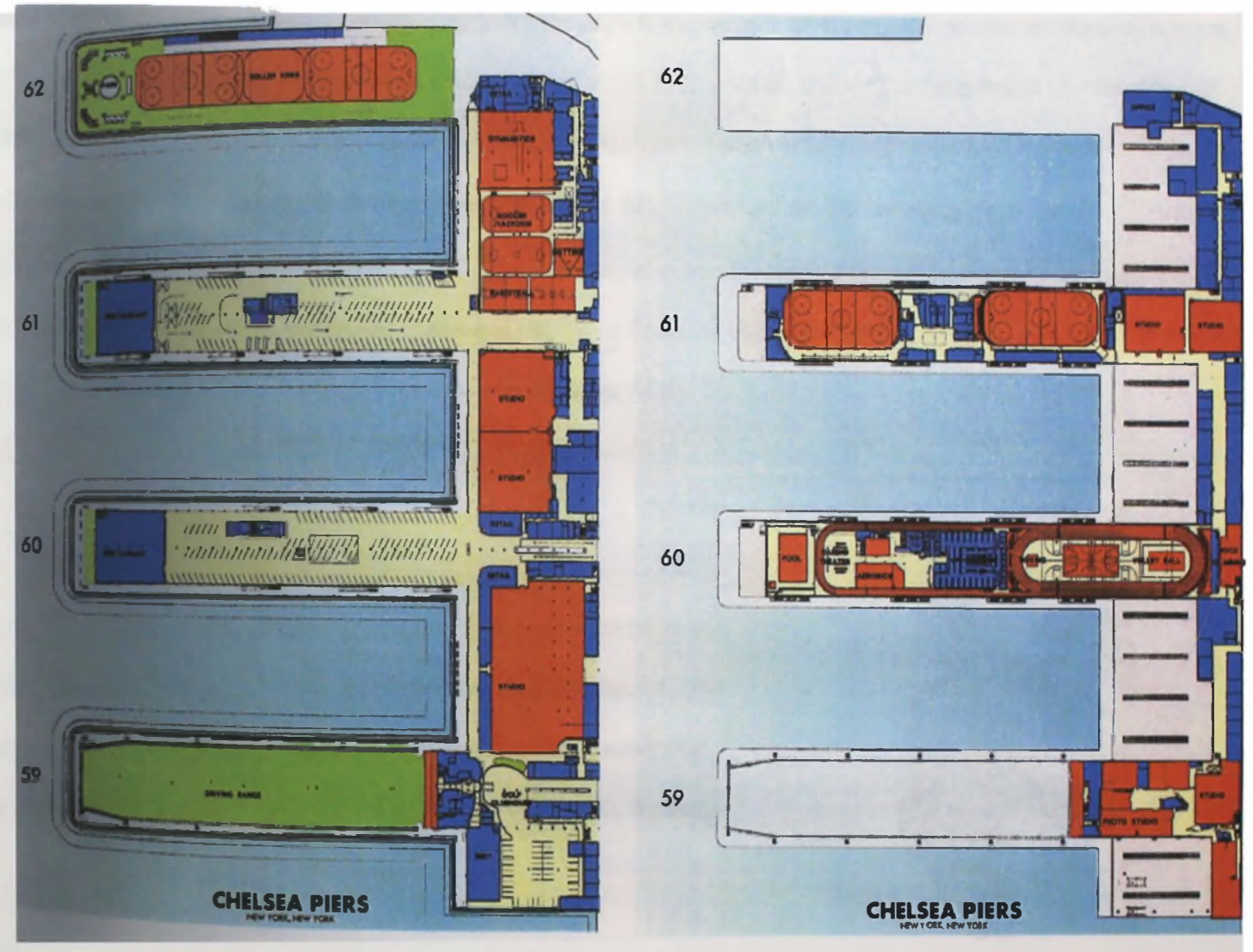


Figure 23: Plans of the Chelsea Piers Sports and Entertainment Complex.

Battery Park City



Figure 24: Derelict Wharf

Between South Street Seaport and the Chelsea Piers Complex lies Battery Park City. The derelict wharves and piersheds (like figure 24) owned by the city would become part of an urban renewal and the last of the mass landfills on Manhattan's waterfront. The landfill for Battery Park City was composed almost entirely of the excavated earth from the neighboring World Trade Center construction. Completed in 1976, the 92-acre parcel successfully extended the city's fabric and grid of streets and avenues onto the new land (see figure 25). What today seems like a conservative urban strategy, was in 1979 a radical move. "For the previous four decades, the redevelopment of cities had been influenced by the techniques of large-scale Modern architecture: superblocks, separation of land uses, elevated streets and building designs which aggressively proclaimed their difference from the historic fabric of the city"⁴¹ The eight design principles (see Appendix B) for Battery Park City were the key elements for keeping the community connected with its waterfront. Despite this successful integration of new and old, "West Street, an eight-lane highway on the landfill's eastern border, remains a barrier separating the new complex from the existing urban fabric."⁴²

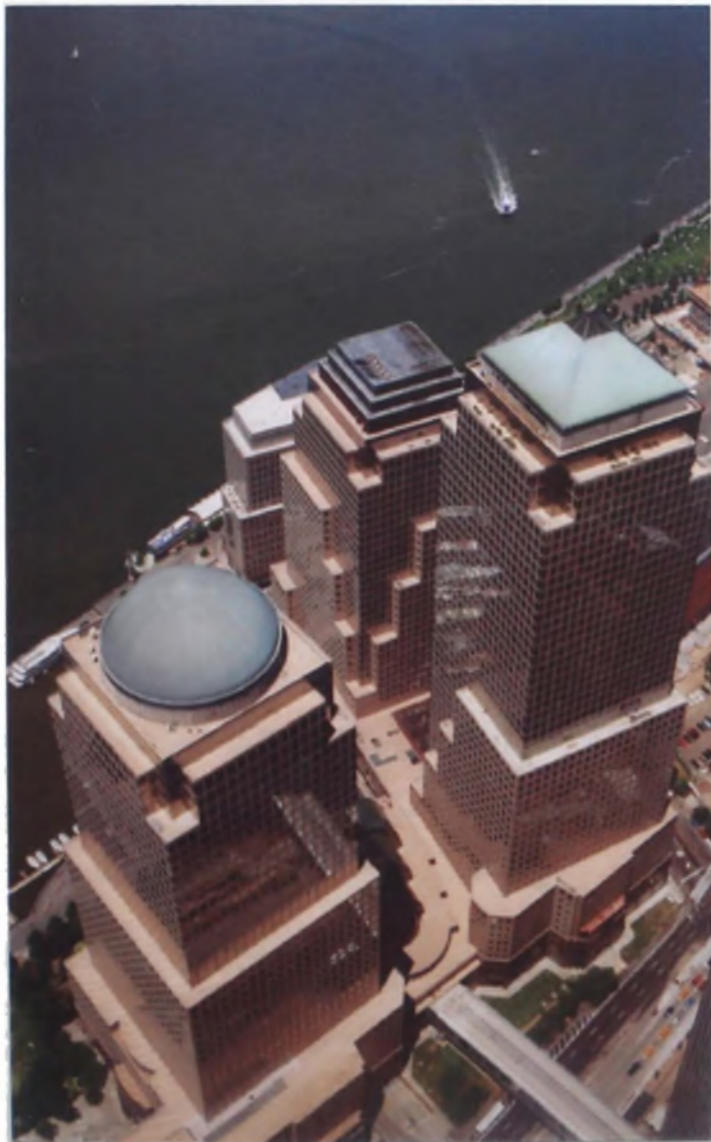
Various plans and schemes were developed for Battery Park City. Some were even very ambitious (like the one in figure 26). The 1969 formation of the Battery Park City Authority (BPCA) oversaw the pier demolitions and landfill. The planned office buildings and luxury apartments would not occur as originally planned. The World Trade Center created a flood in the market for office space during a period that saw increasing unemployment and downsizing. The same applied to residential housing as the real estate market collapsed in the 1970's. The 1979 market turn-around brought about private investors, a new master plan (refer to Appendix B), and a revamped and somewhat privatized BPCA.

Figure 25



The earlier megastructure plans (like figure 26 above) were typical of the 1960's New City Rationale. The 36 blocks of the 1997 plan were easier to develop than the seven pods of the 1969 plan. In contrast, the streets, blocks, and parks of the 1997 plan were not only cheaper to build than a spine, but they were also simpler to understand and more public in nature than the grade separated pedestrian decks of the 1969 plan⁴³ Olympia & York Developments of Toronto were brought in to oversee the entire office project. They in turn held a limited design competition between Kohn Pederson Fox, Mitchell Giurgola, and Cesar Pelli; with Pelli's scheme for the 'next Rockefeller Center' the winner.⁴⁴ Depicted below in figure 27, Pelli's World Financial Center

Figure 27: World Financial Center as viewed from the top of the World Trade Center



would attract the leaders in finance who would secure six million square feet by 1985 when the first tenants began to move in. The public Esplanade along the water and the enclosed Winter Garden (figure 29) that Pelli designed for his World Financial Center were the critical

and popular successes the project needed to continue, especially during an era that is known for its financial ups and downs (1980 to 1992). Surprisingly, BPCA continued their public and civic duties by adding one of New York's premier high schools—Stuyvesant High School—and a swimming pool, both on the north end of the site.⁴⁵ While Pelli is credited with softening the dominance of the Twin Towers on lower Manhattan's skyline, the BPCA is credited with creating an inviting atmosphere with high quality public spaces and institutions. The middle-income housing and retail aspect were not as well received. The "ill-fated Pod III" was among the first residential buildings at Battery Park City, but the concrete box, shown in figure 28, was highly criticized. The project, called Gateway Plaza, was not public friendly in some minds. Originally developed eight years prior to construction by Lefrak and Fisher, residential developers, Pod III was typical of the 1960's megastructure rationale. The fortress-like design had a single guarded entrance and an upper level pedestrian deck that was separated from the access and service below.⁴⁶ The BPCA was able to convince Lefrak to make certain design changes so as to fit into the new design guidelines. However, for the sake of financing concerns, BPCA gave in so that actual construction could take place.

The second housing phase, Rector Place, was more successful publicly and as a residential neighborhood. Unfortunately, it was criticized for having small, non-family oriented apartments. The third, Battery Place, was a nightmare. The stock market crash of 1987, the recession that followed,

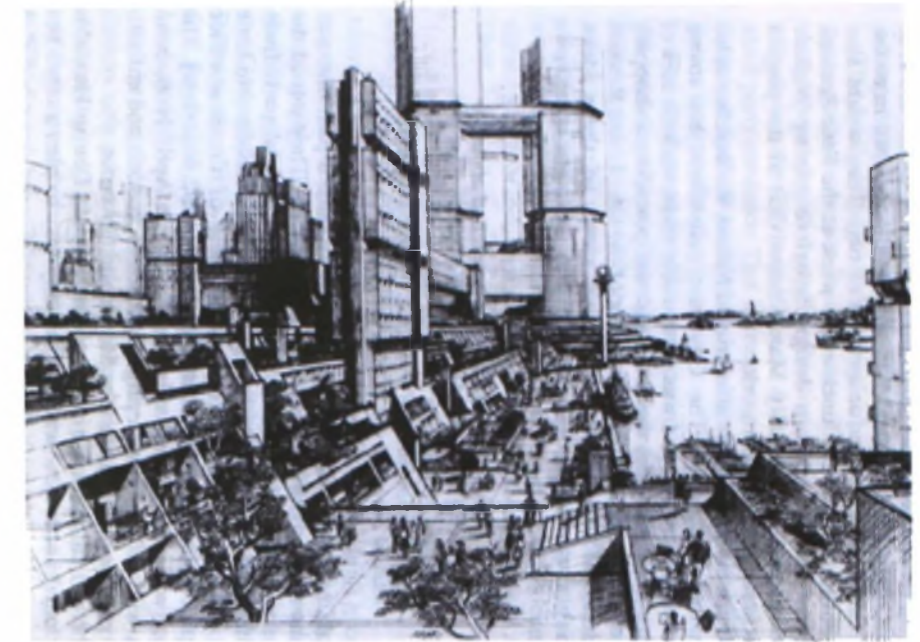


Figure 26: Battery Park City Scheme. circa 1969

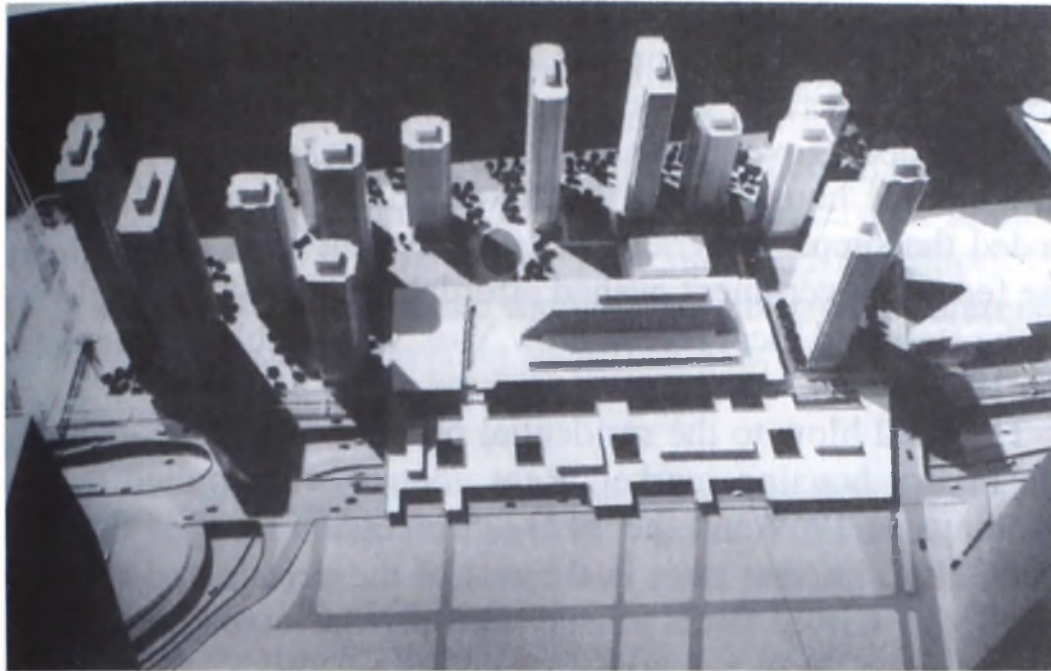


Figure 28:
Pod III by Lefrak and Fisher

and controversy over garden design doomed its development—forcing BPCA to start over and redesign that particular area. The final residential neighborhood started off on the wrong foot with only three completed buildings, but was praised after re-evaluation by the BPCA, who added an active public space, recreational facilities for children and better designed condominiums.

Figure 29:
The Winter Garden at the World
Financial Center. A glass enclosed
space with a tropical atmosphere.
Upscale shops and cafes catering to the
business professional can be found on
both sides and multiple levels of the
Winter Garden.



The ups and downs of Battery Park City are part of New York City’s varied history. As the “BPCA adopted a comprehensive strategy of changing the poor image of their waterfront site through high quality public spaces and institutions”, and “maintaining these spaces at a standard far higher than the unfortunate norm”⁴⁷ While the public openly praises Battery Park City and supports that praise by “flocking to the esplanade and parks in droves,” the critics regard the area as a non-New York space, where it is too clean, too stable, too safe, and does not reflect the urban chaos that is New York City.⁴⁸ The critics continue to state that the public spaces are for rich white people. The public, who is outraged at such comments, has disputed both of these claims. The general public of New York asks if it is a crime to feel safe, or have clean open spaces. In addition, the parks are city owned and operated, and are open to (and used by) all types of people. Battery Park City has been able to create a neighborhood directly connected to its waterfront by its design and creation of the open and public spaces, especially the esplanade. Furthermore, it has connected the communities of Tribeca and the West Village to the waterfront in such a manner that they have been actively involved in the designs of the final vacant properties.⁴⁹

Both criticized and praised, recent redevelopment along New York's waterfront is undoubtedly varied. Clashes among developers and environmentalists along with a lack of government coordination have added to the complications of waterfront renewal. However, "the protracted waterfront battles and subsequent delays have fortuitously spared New York City from several ill-considered projects."⁵⁰

Yet, how does this waterfront revitalization compare to London, home of another one of the world's largest ports and recent waterfront works? Or to Chicago, a city with whom Manhattan has shared many competitions and story lines? How do the waterfronts of these two popular cities compare to the model of New York? What is the basis of comparison? How do projects like London's Docklands or Chicago's Navy Pier connect the community and the waterfront? Answering these questions will without a doubt raise further questions. I believe that examination of recent waterfront projects in these two cities, whether successes or failures, is vital in the analysis of the Lower East Side and its reconnection to the water. For "when well-designed and executed, the waterfront venues around the globe respond to this instinct and create schemes that grow from and reflect the spirit and aspirations of the city they are meant to enhance."⁵¹

London Docklands



Figure 30: London docks circa 1919

Not surprising, but photographs like figure 30 of London's docks and piers look very similar to those of New York for the same time periods. New York's history is directly related to the history of Britain, as stated earlier. Likewise, the maritime connections between these two vast urban centers can be traced via merchant trade and passenger shipping, as well as war, since the 17th Century. Still, why compare metropolitan, modern cities like New York and London? Quite simply, these two cities are the leaders in the Western world financial markets and are likewise considered the two preeminent global cities.⁵² Both cities advanced as great ports, which led them each to become a major world financial market. As such, nowhere in the western world (through to the 1980's) had development been as aggressive and as visible than in the metropolitan areas of London and New York. "In these two cities not only was a proliferation of new large office buildings replacing smaller structures within the old cores, but enormous, highly visible mixed-use projects were springing up on vacant or derelict land."⁵³

In terms of waterfront regeneration, no other city but London can match New York in terms of projects, but also in terms of the roller coaster financial markets of the 1980's and 1990's. Thus, the growth of these cities has been parallel in many aspects.

Figure 31: Covent Garden, Westminster



As a point of comparison, Westminster (often compared to Manhattan's Upper East Side) with its exclusive residents and private firms, saw redevelopment of an old market. This market, partially depicted to the left, and its subsequent renovation, transformed "the entire surrounding area [into] trendy retail and entertainment uses, featuring fashionable shops alongside cafes, restaurants, and bookstores"⁵⁴ The reborn Covent Garden was synonymous to South Street Seaport—from 'historic preservation' to the tourist attraction atmosphere. The residents of Westminster felt alienated and deeply criticized the project. There is a feeling of commercial invasion and no sense of place—almost as if the project was disconnected from Westminster.

Another model of comparison (and contention) is London's Docklands. An ongoing project that can trace its beginnings back to the waterfront decline and abandonment of the late 1960's. Likened to Battery Park City but on a much larger scale, the Docklands project covers eight and half square miles (about 5,500 acres) along the Thames River. The Docklands includes the Isle of Dogs and the Canary Wharf (refer to figure 32).

Located in the most deprived area of London, the Docklands were developed under various urban schemes. The Port of London Authority was highly criticized for its inability to regenerate the London docks. A change in the political environment created the London Dockland Development Corporation (LDDC) in 1981. Like the Battery Park City Authority, the LDDC promoted economic development in the area. Its primary focus was to stimulate growth in London. "Instead of viewing the territory under its planning control as embedded within the Docklands boroughs, the LDDC pictured the riverbank as a new vibrant core for the whole metropolis."⁵⁵ The entrepreneurial approach, however, showed the lack of control the LDDC would have and foreshadow the financial disasters. Their plan was to make things happen. Unlike the Battery Park City Authority, the LDDC never developed a master plan.

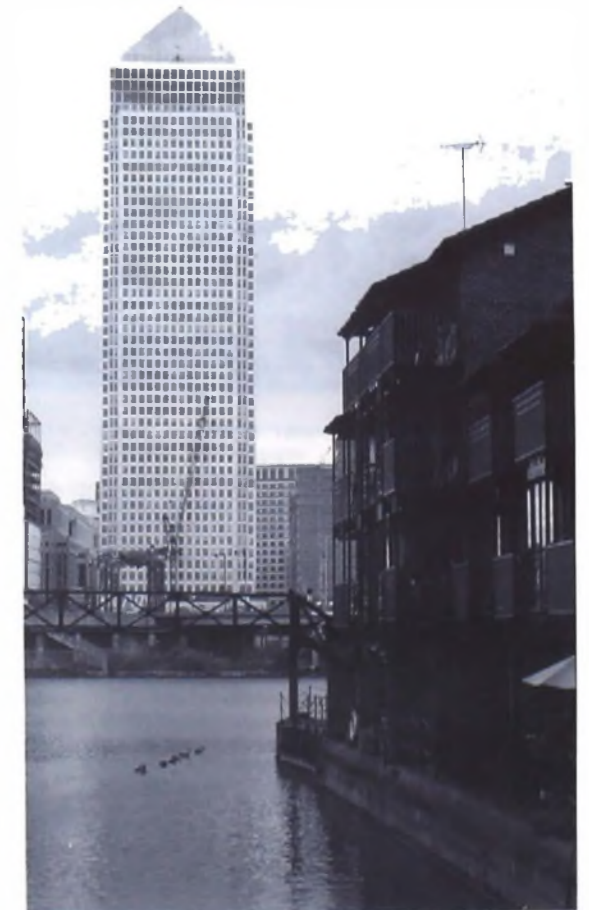


Figure 32: One of many views of the Canary Wharf in London with Cesar Pelli's tower as a focal point.



Figure 33

Residential development was the first phase (and priority) of the Docklands project. Consisting of resurrected warehouses and new construction, the structures were ambitious and successful at first. However (refer to figure 33), “except for the nautical themes of their names, the residential complexes made no architectural reference to the communities which they colonized—nor for that matter central London... indistinguishable in appearance from typical suburban blocks of the low-rise flats anywhere in the southeast”.⁵⁶ The 1987 market crash affected London just as it did New York, and ultimately halted residential development for years in the Docklands. However, there currently seems to be a surge in the Docklands’ market for housing. It is important to note however that no hard numbers are available at this time to support such claims.

The Isle of Dogs

The Isle of Dogs, shown in the pre-war map on the next page, was a bustling maritime entity that can be compared to the East River docks during the early days of shipping. Unlike the East River however, the decline of the Isle of Dogs is directly connected to World War II and the bombings that crippled this community. Prior to being included in the massive Docklands project, the Isle of Dogs had experienced boom and bust, and redevelopment financial woes from the end of the war to the 1980’s. The close-knit communities of the Isle were first altered by the devastation of the war and then by the redevelopment that followed it. “Furthermore, as in so many other aspects of change on the Isle of Dogs in subsequent decades, it was not that renovation, redevelopment and improvement in living conditions were not required, and desirable, but the form that redevelopment took that was problematic.”⁵⁷

Although the post-war years and the 1960’s were prosperous for the Isle of Dogs with better housing, high wages, and almost no unemployment, things changed. As shipping changed and the main product became oil, the London port started to change. Additionally, container shipping had a new, completely different set of requirements. “London could no longer compete as an international port” was the general sentiment⁵⁸ (which was later disproved). This would pretty much establish the beginning of the end for commerce on the Isle. Just as in Manhattan, containerization moved an entire industry elsewhere, leaving a once thriving waterfront abandoned and in need of renewal.



Figure 34:
Isle of Dogs, Circa 1930

With the LDDC involvement, the Isle of Dogs would be incorporated into the Docklands. The establishment of an intensive commercial development known as the Enterprise Zone (EZ) can be found on 482 acres of the Isle's center. Introduced in 1982, the Enterprise Zone was aimed at the commercial sector in an attempt to bring businesses to the area. Tax breaks, miscellaneous other incentives, and little planning intervention and regulation were the spark, attracting corporations and small businesses alike.

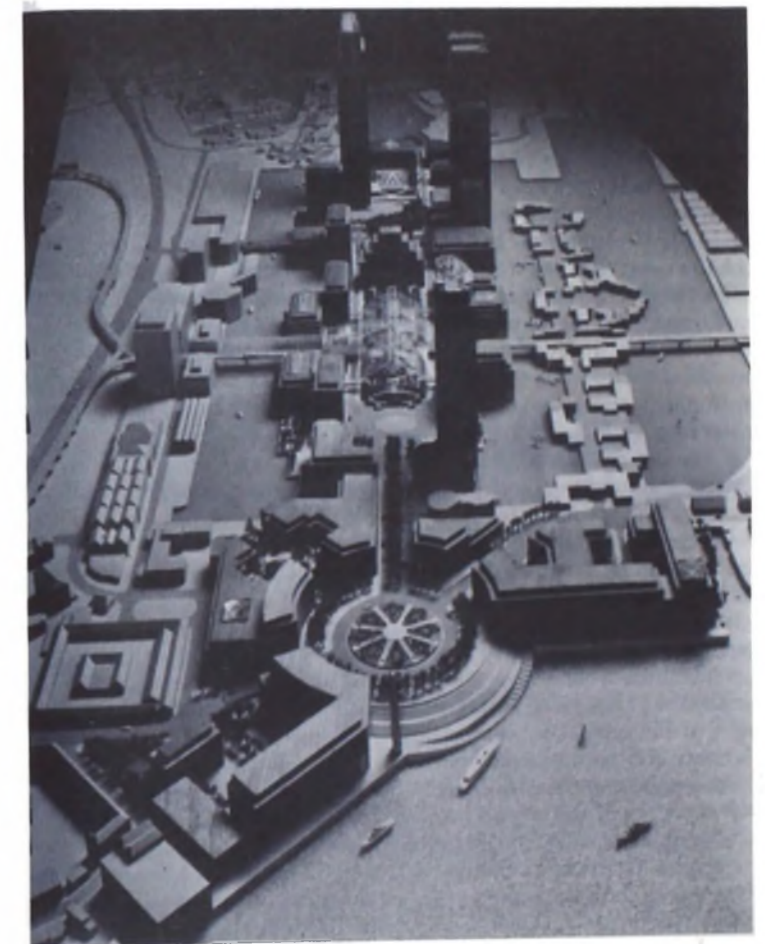


Figure 35:
Initial model for the
redeveloped Canary
Wharf in London's
Docklands.

The draw of the Enterprise Zone led to the creation (read redevelopment) of the Canary Wharf, as modeled in figure 35. Originally part of the West Indies Docks, the Canary Wharf came into fruition via its connection to the Canary Islands. Warehouses were stocked full of goods, fruits, and sugar. The Canary Wharf was typically the busiest of the piers and docks on the Isle for 1900 to 1965.

These themes of leverage, lack of local democracy and flexible planning had their ultimate expression in the Canary Wharf development. Canary Wharf was announced in the summer of 1985. The scheme originally put forward was for a 10m sq ft development on 71 acres in the Isles of Dogs, 55 acres of which lay in the EZ. Heralded as the largest single property development in Europe at the time it comprised 8.8m sq ft of offices, two hotels, 100,000 sq ft of service facilities, 0.5m sq ft of shops and restaurants and over 8,000 parking spaces. Controversially, there were to be three sixty-storey, 850 ft high office towers which were in the line of the view from Greenwich Park, widely regarded as one of the most important and beautiful in London [see figure 35]... it was argued that Britain needed Canary Wharf if it was to stay ahead in the world race to be a financial centre... The developers threatened to go to Frankfurt or Paris, London's European rivals, if they did not get a site in Docklands.⁵⁹

In mid-1987 Olympia & York (O&Y), developers of Battery Park City took over the Canary Wharf project (much to the pleasure of the local government). Following the design success of Battery Park City and the World Financial Center, O&Y brought in Cesar Pelli, as well as I. M. Pei, and Skidmore Owings and Merrill. "The original scheme was changed to include 10m sq ft of offices, 500,000 sq ft of retail space and a 400-room hotel", and two of the three "towers were reduced to 690ft and the centre tower moved".⁶⁰

Figure 36: The Canary Wharf on the Isle of Dogs, Docklands, London



O&Y sunk outrageous amounts of money into the Canary Wharf. Following the success of Battery Park City, they created open spaces and public amenities that amounted to more than one-third of the land dedicated as open space. O&Y also took over control of the failing ferry service between central London (Charing Cross Piers) and the Docklands. Considered by many to be an attempt to recreate 'Wall Street on the water', Canary Wharf did become a great, technologically advanced commercial district.

Canary Wharf (depicted in figure 36) was unfortunately struck with the early 1990's market slump. At a time when hardships were increasing and corporations downsizing, O&Y was still in the habit of buying out leases in Central London to get tenants to move to Canary Wharf. In the end, this and other unsound leasing deals would devastate Olympia & York. The World Financial Center in New York was O&Y's only lucrative asset and was also the only part of the firm's portfolio not under bankruptcy protection in the Americas.

Ann Breen and Dick Rigby, authors of The New Waterfront (1996), asked if there are any waterfront failures or flaws. They immediately answered 'yes', citing the Canary Wharf. Intended as the jeweled centerpiece of London's Docklands, the financial and planning disaster of Canary Wharf made a major mistake by lifting all planning controls. Essentially leaving the project under the influences of market driven factors. Under this

project-by-project approach, all remnants of the original “Isle of Dogs working-class neighborhoods needed to be shoved aside, or obliterated,” and in total disregard of sensitivity to place, “a completely alien, North American-style project was built”.⁶¹ In the end, the £5-billion price tag of the Canary Wharf bankrupted O&Y, who was then the world’s largest development corporation.

Figure 37:
The Canary Wharf, Pelli’s Tower and the Millenium Dome



The Docklands however may be on a rehabilitative upswing. As seen in figure 37, the late 1990’s construction of the Millenium Dome and other works in the Docklands brought millions to the waterfront for the Millenium celebration. The Dome, it was hoped, would bring additional development. As of this writing, London is still undecided as to sell or demolish the abandoned icon, with recent reports claiming that it could become a biomedical research center.⁶² Also visible in figure 37, is One Canada Square, the tallest (seventy-stories) office building in Europe. Mimicking the structure at the World Financial Center, One Canada Square has been criticized as the sore thumb of Europe—standing alone without the benefit of a Manhattan-like skyline to blend into. Although criticized as it is, the office tower is extremely successful of late and practically all leasable space is full. Additionally, a refinanced LDDC has started work on the Royal Docks. Now using strict planning and design guidelines as well as a master plan, the LDDC seems to have learned from its earlier mistakes. Likewise, smaller projects on the Isle of Dogs and the Enterprise Zone have been aimed at small users, design firms, and the professional services industry and have been well received by the local critics.

In the end, the Docklands success depends on how it handles future projects, economic booms and busts, and the infringing political environment of the European Union. As for a testing model, London both compares and contrasts well against New York City. The Docklands project alone can serve as a model of ‘things to avoid’ for those creating plans and developments for Manhattan’s waterfront. However, the crux of the matter lies with connection. Did the Docklands project, the Enterprise Zone, or the ‘new’ Canary Wharf connect its community to the waterfront? Other than physical location, the Docklands has done little to date to make connections to the waterfront, aside from selling the views and using nautical names. The EZ was solely developed as a ploy to draw companies to the area in order to spark interest and construction. The Isle of Dogs historically has had strong ties to its waterfront, however those connections have been lost with recent redevelopment. As for the Canary Wharf, O&Y had the intent to make a community (both residential and commercial) that was tied to the waterfront, yet the lack of planning and controls by the LDDC among other situations led to a lesser project. Aside from the lack of a master plan and the alienation of the locals, the LDDC ignored the concept of sensitivity to place and attempted to build a larger Battery Park City. “Many people considered the long-term aim of the LDDC was not regeneration for people in the Docklands, but their replacement by a new community.”⁶³

Fortunately a group of firms, such as Koetter Kim and Associates of Boston, are currently developing projects throughout the Docklands, but on a smaller scale. Instead of attacking the area as a whole, they have broken several of the areas into clusters (read communities). They then treat each cluster within its context and with an intent that relates to or focuses on the waterfront. The model below depicts one such Canary Wharf

cluster, Western Segment. Koetter Kim treats their design as “a response to the intrusion of large-scale built objects and insular activities into an ongoing urban setting”.⁶⁴ To soften the edges along the water and add comparable scale to the existing tall buildings, Koetter Kim utilized a step-down approach as it neared the waterfront. Aside from “the dramatic views” and “waterside gardens” that open to the river, they were able to dissolve the harshness of the waterfront while engaging neighboring conditions.⁶⁵

This site is just one several that Koetter Kim is currently developing throughout the Docklands. River Pier, Blackwall, and Port Greenwich are but a few, and they all have a common theme of connection. Valuing the importance of the Thames riverfront, each cluster is designed as a portal, “an important point of transition between land and water”.⁶⁶

How does this work as a model for New York? Or as a model for the reconnection of the Lower East Side to the East River? Until recently, it was a model of what not to do. An example of what may seem good on the cover is actually not so good once one delves inside. “Expensive housing, the closure of local firms, rising land values which pushed rented housing and other social facilities out, all compounded feelings that, in reality, the local community was not wanted.”⁶⁷ In this author’s opinion, New York would do well to serve as a testing model for the future of Docklands. First and foremost there must be a master plan, and this plan needs to include the input of

local residents, needs to be sensitive to place, and needs to establish a connection. If the future Docklands are pursued correctly and with the goal of providing benefits to the local community, then the project will be a success, which Koetter Kim and Associates are currently attempting to do.

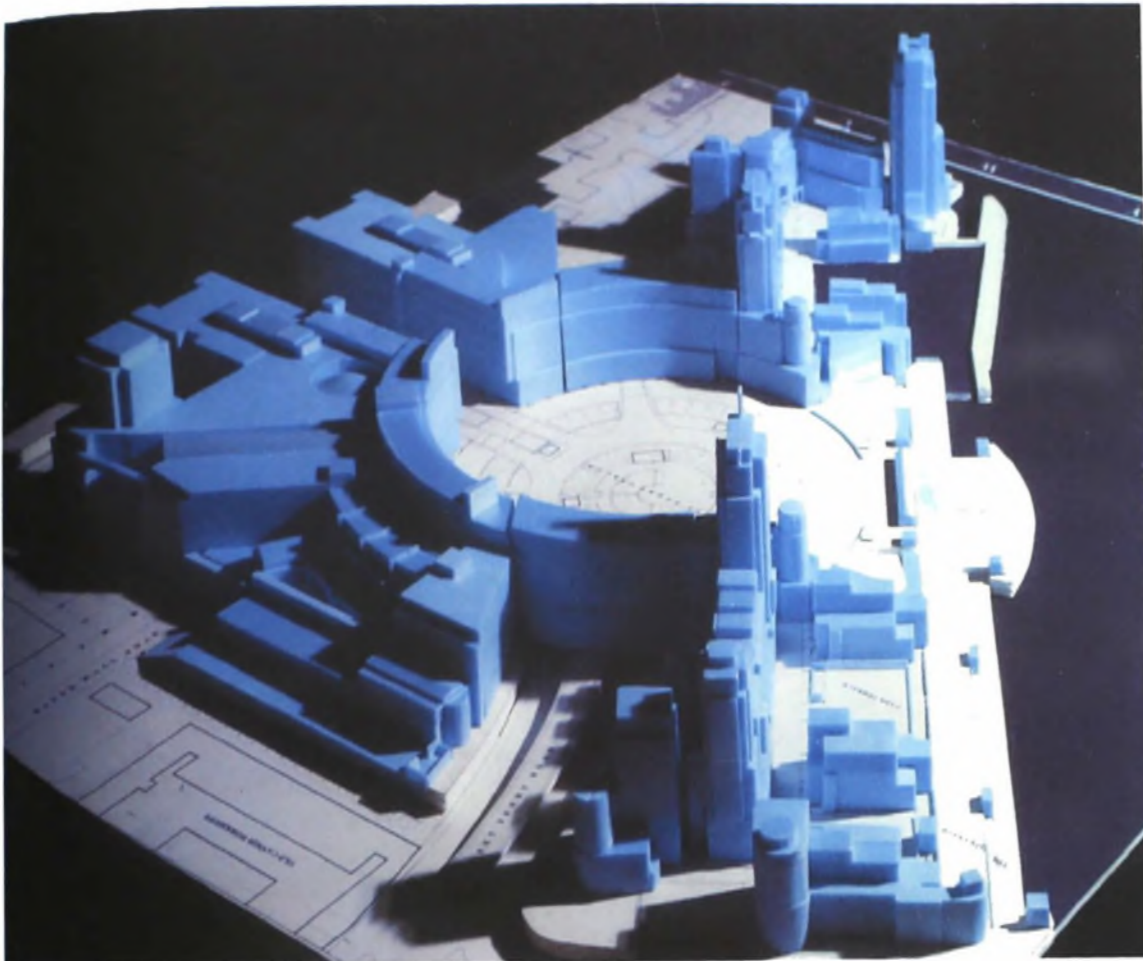


Figure 38: Koetter Kim and Associates model for Western Segment, Canary Wharf.

Chicago—Lake Michigan Development

Among American cities, no other metropolis can compare to the growth, history, and development of Manhattan than Chicago. A picture of Chicago's waterfront (at right) could easily be confused with one of New York. Even the landfilling (figure 40) that took place resembled that of what happened around the southern tip of Manhattan.

Figure 39: Chicago docks circa late 1800's



Figure 40: Landfill action on Lake Michigan, circa 1928



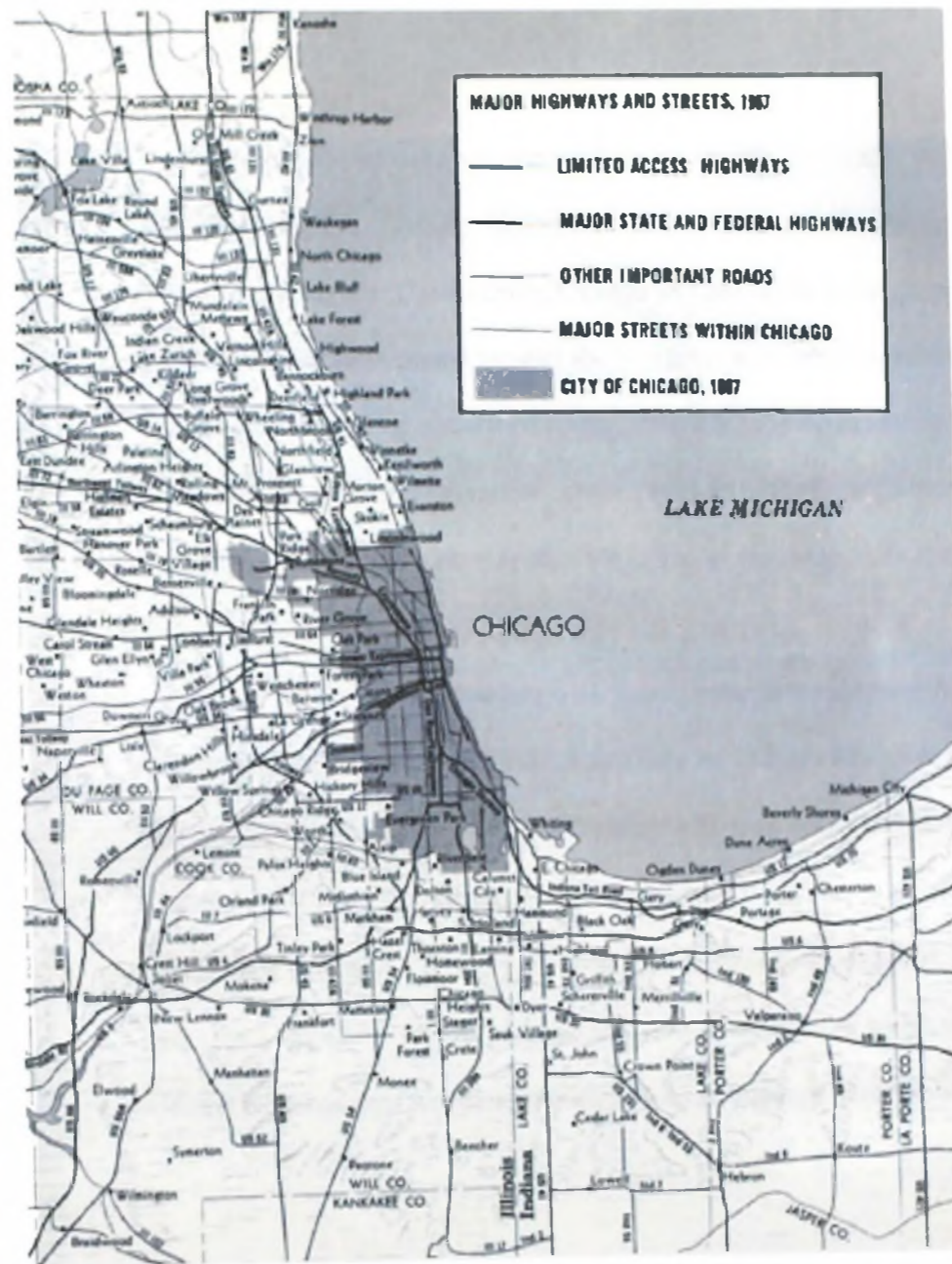


Figure 41

Like Manhattan, Chicago has north and south waterfronts, as well as east and west. However, Lake Michigan creates the eastern edge (note figure 41), while the interesting curvature of the Chicago River and its mouth at Lake Michigan (note figure 42) create the north, south and west sides.⁶⁸ Originally a marsh land, Chicago had to fill most areas as it grew. In many ways Chicago's history mirrors that of New York—from early settlements to major disasters to the skyscraper craze.



Chicago's waterfront however dealt almost entirely with trade since it lacked a direct ocean access. Nevertheless, the piers and docks were quite busy, full of sailing ships and steamers (and later modern vessels) meeting the ever-growing rail industry that connected the city to the rest of the country. Conveniently, Chicago was one of the few metropolitan cities that had the space and the infrastructure to quickly meet the needs that containerization brought about. This in turn helped to establish Chicago as the predominant city in the nation for rail transport. Without venturing off on a historical tangent, it would be more beneficial to examine the city's current waterfront. The following facts can be taken as given: major industries have been a large part of the Chicago River (and its clean-up), Chicago is a dense city with congestion equal to that of Manhattan, and the city has often attempted to create recreational and public facilities along Lake Michigan (refer to figure 43).

As a whole, Chicago has had better public waterfront amenities than New York over time. This is further evidenced by the recreational emphasis placed on Lake Michigan's shore while the Chicago River was always treated as an area for business and industry. Moreover, additions to the Adler Planetarium (1991) and the Shedd Oceanarium (1992) reinforce the public's presence along Lake Michigan. Throughout the late 20th Century, Chicago has focused on its recreational needs as well as its residential needs. Many programs in the Comprehensive Plan for Chicago, published over the years, outline numerous areas of growth and/or renewal for residential purposes (most of which were inland sites with a few along the river). Additionally, those plans along with a variety of Lakefront Plan[s] of Chicago, focused on the upkeep and addition of recreational facilities, most of which can be found along the waterfronts.

Figure 42:
Map of Chicago River.

Note the interesting curve near the mouth of the river, creating a finger-like peninsula.



Figure 43: Grant Park, Chicago

Home to the Marshall Field Museum, John G. Shedd Aquarium,
and the Adler Planetarium and Astronomical Museum.⁶⁹

Lois Wille performed a historical study of the lakefront and made numerous recommendations in 1972.⁷⁰ Among those were statements about the parks, preservation, and pollution. Wille's eighth recommendation stated that the "Navy Pier, growing old and obsolete, should be converted into a recreation area, with emphasis on marina development", and continued to note there was "room for an indoor swimming pool, gymnasiums, restaurants, handball and tennis courts and bowling alleys".⁷¹ From this point forward, many ideas and plans were debated with little action taking place. Chicago Fest in the late 1970's "brought millions of visitors to the facility, stimulating a move for the planning and development of a more permanent use for the site".⁷²

Finally, a 1991 design competition led to the introduction of Benjamin Thompson to the City of Chicago. Six years after the work on Pier 17 and the South Street Seaport, Thompson created an immense entertainment and retail complex (figure 44) on the three thousand-foot long pier. Opened in 1995, the facility was divided into sections and holds true to his style of historic preservation amidst commercialization. It also has its critics.

Figure 44: Chicago's Navy Pier by Benjamin Thompson



"The structure is pleasantly dominated by a Ferris wheel... Apparently controversial, the wheel at night is indisputably a major landmark and has historic significance—George Ferris first displayed the amusement ride that now carries his name in Chicago in 1883."⁷³

Among the structures that compose Thompson's new Navy Pier include a Family Pavilion at the pier's original head house. This area includes a Children's Museum and an IMAX theater along with the prototypical shops and eateries. A six-storey glass atrium is next. This building, the Crystal Gardens, is home to an immense botanical exhibition. The south edge of the pier provides a promenade, stages for various entertainment, tour boat dockage, and retail carts. The Ferris wheel and a late 19th Century carousel mark the beginning of Pier Park, along side of the south dock. A pond/skating rink, retail complex, and the fifteen hundred seat, tensile topped Skyline Stage form the rest of Pier Park (visible in figures 44 and 45). A small exposition hall and beer garden can be found just before the lavishly restored Grand Ballroom at the pier's end. "The ballroom's former grandeur, including its eighty-foot domed ceiling, has been restored, and it will be used for special events and performances, much as it was in its early days."⁷⁴ The Navy Pier claims to offer the best view of *both* the skyline and the lakefront of

Chicago. Thompson's work also continues the city's tradition of utilizing the waterfront for public purpose, aligning itself between the various beaches and marinas, and the grand entertainment areas such as Grant Park.

Figure 45: View of Chicago's Navy Pier



Figure 46: Aerial View of Chicago's Lake Shore Drive and the green corridor along the lake.



The Navy Pier may have had its initial critics and controversy, but after the public's appreciation and the praise for the rehabilitation of the original Grand Ballroom, Navy Pier was deemed a huge success. Unlike South Street Seaport, Chicagoans were quick to accept the complex and its offerings. However, it is important to note that in New York, Thompson's project was initially presented as an example of historical maritime preservation. In Chicago, the rebirth of the Navy Pier was always to be recreational. Considered a "glorious lakefront facade",⁷⁵ the debate however has been (and continues to be) over who uses/benefits more from Chicago's waterfront amenities—the tourist visitors, businesses,

or the local population. Who knows what the final outcome of that debate will be for all three enjoy their share. What is interesting to note is how the city connects with its waterfront. For Chicagoans, connection takes on more of a pleasurable, recreational, connotation. While some segments of the city have no direct relation to either body of water, the residents still feel connected due to the number of facilities and amenities available to them along the water. This also serves as reasoning for the local support of the Navy Pier. Granted, there is a historical significance to the pier as well as the attitude to retain some history with the project. Yet, it is the recreational component that makes it successful—giving the community what they wanted (and what was advertised).

In conclusion, Chicago serves as a positive model for comparison of redevelopment of waterfronts. It is important to note that Chicago has historically treated large tracts of its Lake Michigan edge as public domain. This is still evident today, as figure 46 depicts the compact solid city on the western side of Lake Shore Drive, and the expanse of green and beaches on the east side. It is possible that Manhattan can examine this development in Chicago and apply accordingly, and in context, to what is Manhattan.

In short, the recent waterfront renewals of Manhattan, London, and Chicago each have something to offer. Did they make a connection between the waterfront and the community? In some case they did, while in others they did not. But what is meant by *connection*, how is it defined? Connection, or to connect, is defined by Webster's as a link (or to link or to join). In the context of waterfront redevelopment, the reconnection lies with the linking, again, the community and its waterfront. While analyzing each city and its projects, a set of questions was developed, and the following is a summary of that analysis. Was there a direct connection between the community and the waterfront prior to redevelopment? Yes, and in some instances it was more evident than in others. If this connection was broken, then how? In London, for example, the early Docklands developments pushed the existing people aside and alienated them. Is there a historical significance to the area? For South Street Seaport and the Chelsea Piers, the Canary Wharf and Isle of Dogs, and the Navy Pier there were major historical ties, all of which were maritime related (mostly to shipping). Has the redevelopment endorsed or ignored the historical significance? While in most cases the projects did not endorse the historical significance, most did not completely ignore it either. The Chelsea Piers complex is the one project that focused the most on the site's former history, and incorporated that history into the new project. Does the project have sensitivity to place? That is debatable for South Street Seaport, whereas Chicago and Battery Park City both took note of their place through the project. London's Docklands did not initially, but now with Koetter Kim there is more intent to work with a sensitivity to place. Each one of these questions will also be applied to the Lower East Side and the proposals for reconnection to the East River.

The Lower East Side and its History

Given the attention that waterfronts have received globally in the last twenty years, some areas have yet to be redeveloped. Within New York, a city which has revitalized various areas of its waterfront with large and small-scale projects, there lies an area known as the Lower East Side. Pictured in figure 47, the Lower East Side waterfront is situated on the East River between the Williamsburg Bridge (upper left of the photograph) and the Brooklyn Bridge (partially visible in the lower right of the photograph). The Manhattan Bridge is in the center of the photograph.

As stated previously, the East River was home to the world's busiest piers and docks. The neighborhood of the Lower East Side was home to the mariners, shipbuilders, dock stewards, and others who worked the waters or the docks. However, as the industry changed and affluent residents moved north with Manhattan's growth, the Lower East Side declined. The homes of the upper class became the boarding houses of the poor. Tenant house buildings, like the one illustrated in figure 48, were quickly rising throughout the area. Although Housing and Tenement Acts were passed in 1879, 1887, and 1895, little actually improved due to the sheer volume of immigrant growth along with the lack of enforcement.



Figure 47:
The Lower East Side
Neighborhood of
Manhattan



Figure 48: Typical Tenement
Apartment Building

For the vast majority of immigrants streaming into New York at the turn of the century, the path from Ellis Island led straight to the Lower East Side. By 1900, its 450 blocks had become the most densely crowded place on earth—home to more than half a million people already, with thousands more arriving every month... Now there were more than one thousand people per acre... a concentration of humanity unlike anything ever experienced in world history, before or since.⁷⁶

As automobile ownership surged following World War I, congestion throughout Manhattan got worse. With the urban landscape swiftly filling with vehicular traffic, the need for new highways and thoroughfares was evident. As these new streets were created, the city wanted to alleviate inner city congestion while at the same time increase traffic flow around Manhattan, from the West Side Highway to the Harlem River Speedway.

The Franklin D. Roosevelt East River Drive

With deplorable living conditions and the maritime activity almost non-existent, the Regional Plan Association of 1929 deemed the community of the Lower East Side to be the perfect starting point. Supporters of an East River drive viewed this plan as an opportunity for slum removal. Home to some of the most dilapidated and decayed real estate in Manhattan, the city also liked the idea of cheap land.⁷⁷ In choosing the waterfront for the new north-south roadway, the Plan Association not only found the land to be cheaper than that only a few blocks inward, but also found property ownership to be less complicated since most buildings were abandoned. According to Ann Bittenwieser, in her book, Manhattan Water-Bound (1987), the Lower East Side Chamber of Commerce favored the roadway for its financial promise, yet lauded the drive's social role as an open space that would benefit the existing low-income community. Meanwhile planners and developers viewed the new drive as a solution to their urban problem—slum removal. Additionally, the waterfront was viewed as a priceless

asset, creating a push by local property owners for an influx of high-income, high-end housing and commercial development. The highway was favored for its financial promise for “within brisk walking distance was Wall Street and its upper-income jobs, which with the road would bring in a higher class of residents”.⁷⁸

In 1931, and again in 1933, the Regional Plan Association released revised versions of the highway. The renderings in figure 49 and 50 depict East River Drive as a four-lane avenue with tree-lined walks and upscale

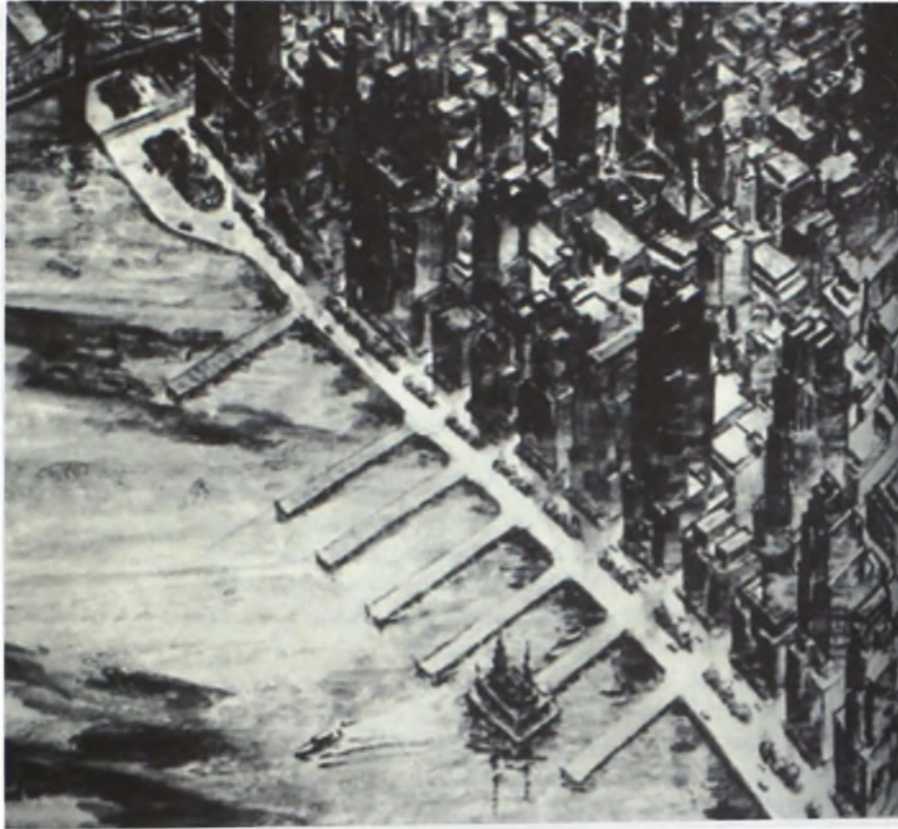


Figure 49



Figure 50

high-rises inland along with a parkland corridor and a green buffer to the east with new waterfront businesses. Other schemes and plans would surface including an idea for a yacht basin at Corlears Hook near the Williamsburg Bridge.

Social reformers supported the revival and rehabilitation of the Lower East Side Community. They were however opposed to a highway at the water's edge. “The waterfront... was a ‘really priceless asset’ and it could become ‘the most potent factor’ in the Lower East Side’s revival,” cried the opponents, concerned “that the proposed motor highway would simply cut off those living on the interior of the Lower East Side from the city’s shore”.⁷⁹ Fortunately for these opponents, little roadway construction actually took place.

In 1934, Mayor Fiorello LaGuardia, secured federal funds for public projects under President Franklin D. Roosevelt's 'New Deal'. Additionally, Mayor LaGuardia knew there was only "one man above all" who could handle the funds and civic responsibility—Robert Moses.⁸⁰ Robert Moses was named Arterial and Parks Commissioner for New York City (a.k.a. City Park Commissioner). The creator of parks and playgrounds, the creator of bridges, and the builder of public amenities, this one man would forever change New York's landscape.

Moses viewed the East River Drive, which he renamed the Franklin D. Roosevelt East River Drive (FDR Drive for short) to honor the President, as six lanes with long viaducts and a landscaped highway edge with parks along the waterfront. While Moses, who was considered the arterial roadway king, started FDR Drive near the Triborough Bridge in 1934,⁸¹ the New York City Planning Department is credited with the Drive's construction and completion.

Figure 51: Current picture of FDR Drive, north of Corlears Hook



Moses' vision for FDR Drive met with some problems, including insufficient space along the water's edge. He decided to stretch the land over piles in the East River to guarantee the green/park corridor, see figure 51. Although the area of Moses work was not in the Lower East Side neighborhood, it gave hope of what was supposed to develop. As work began in Corlears Hook (near the Williamsburg Bridge) to demolish old tenements and abandoned buildings, the scope of the project changed. Although developers still pushed for upper-class residences, the federal funds secured by the Mayor were for public housing use and redevelopment of lower-income communities. With the adjacent housing slated for a "less affluent group, the roadway took back its mantle of traffic relief," and for the first time, the news reports described the East River Drive "as a continuous lane for fast traffic".⁸²

As construction for FDR Drive commenced, the Lower East Side's decline continued. Chamber of Commerce leader, Orin Lester, produced the article "What Do We Have to Look Forward to on The Lower East Side?", in which he states that some buildings "should be improved for low-income housing...[b]ut the real effort should be redevelopment as a community to accommodate a residential and business population that can support the area".⁸³ A few months later, a scheme would surface in the local press depicting the Drive as a beautiful, parkland lined avenue with art deco style buildings along the western edge.

By 1937, proposals were still altering plans for the Lower East Side and the look of FDR Drive. The new Manhattan Borough President, Stanley Isaacs, announced in 1938 that completion of the East River Drive would take place over the next four years and create a continuous highway for traffic, relieving the present burden on local streets.⁸⁴ With this the Drive's purpose was no longer connected to the revival of the Lower East Side neighborhood.

With high-speed advancements in vehicle design, new roadway planning and design soon followed. As cars were being produced to reach greater rates of speed, highways and freeways were being built to accommodate their travel (such as the Autobahn and the Autostrade in Europe). As New York State passed legislation for such freeways, FDR Drive was no longer considered an elegant boulevard. Much to the dismay of Lower East Side residents, the new highway would do little to revitalize the waterfront. Already built sections to the north remained pretty much as is, able to retain their parks and trees and such. Yet in the Lower East Side, neighborhood lighting, pedestrian access to the water, and connections with local streets would not only increase local traffic usage but also impede the north-south flow of through traffic.⁸⁵ In the end, the still declining community would see the unfortunate construction of an elevated highway along the water's edge (figure 52), with little or no room for the originally planned parks (figure 53). This highway would later exclude commercial vehicles and become an express commuter way that allowed easy access from the Financial District to other areas of Manhattan and the boroughs without using the surface streets.



Figure 53:

FDR Drive in the 1990's, note the proximity of the highway structure to the apartment buildings and the pedestrian walk above the southbound lanes.

Figure 52: FDR Drive circa 1949



Effectively, the built FDR Drive physically and figuratively created a 'wall', separating the Lower East Side community from the water. This is further evident in figures 54 and 55 on the next page. On the positive side, social reformers did not give in. Fact is, even with the lost access to the waterfront, redevelopment and improvements to the low-income housing situation occurred. The Vladeck Houses at Corlears Hook opened alongside the opening for the completed FDR Drive. At the community's northern border, the Vladeck Houses were fortunate that the previous development had placed a park on Corlears Hook. Because of the physical topography, the land 'bumped-out' into the East River which kept the highway slightly inland. Although the Corlears Hook Park was now 'ripped-in-two', later amendments would ease public access. Politicians and highway supporters were relieved by the redevelopment success of the Vladeck Houses, stating that the highway had done its job and revived 'a' neighborhood.⁸⁶



Figure 54: FDR Drive



Figure 55: FDR Drive

Slowly, other block projects sprang-up. Among the individually refurbished buildings were newly constructed ones. Rivaling Vladeck Houses was the Alfred E. Smith Houses. The Smith Houses (pictured in the lower right of figure 56) focused internally, adding playgrounds, park facilities, a ball field, and open green spaces amid the apartment towers. Similar projects continued through the interior of the community over the years with little attention given to the lost waterfront. However, what was envisioned as the 'city in the park', a Corbusian idea, the blocks became more of the 'city in the parking lot'. Although numerous trees can be found among the towers, they are creating a canopy that hides a field of asphalt and concrete from the views above.

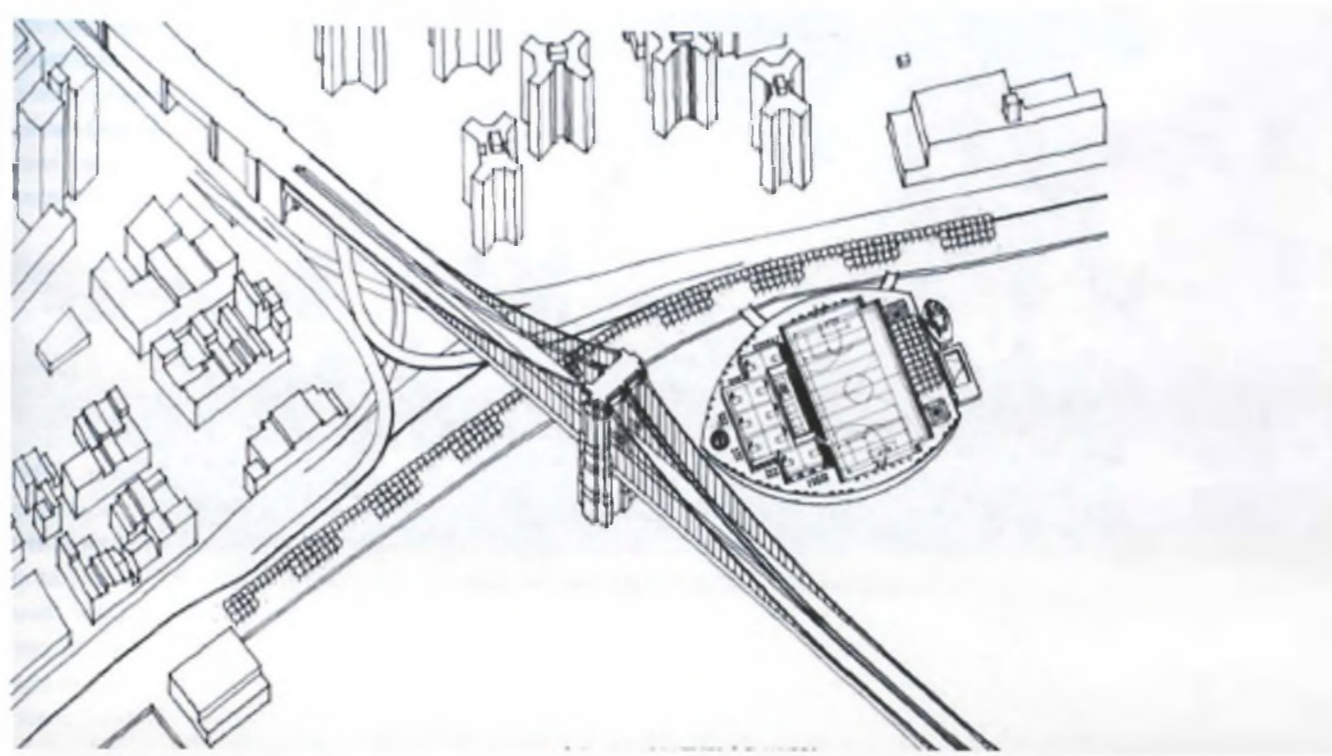


Figure 56: The Lower East Side Community

Over the years since the end of World War II, many plans and project ideas were presented in New York. An example of such is Robert Venturi's East River Park on the north side of the Manhattan Bridge across from the Smith Houses (see drawing, figure 57). In true Venturi style, the boat-shaped park would have indeed added desirable amenities to the area, let alone the aspect of making a connection between the waterfront and the neighboring community. However, Venturi's idea was more of a band-aide, a tongue-in-cheek approach to remembering the shipbuilding and maritime activity that the area was famous for. Ignoring the possibilities of waterfront renewal, Venturi's park was an attachment, a quick solution to the larger problem created by the highway interrupting the former connection the Lower East Side had with the river. It is important to note that some believe this project served as inspiration for Butler Rogers Baskett, and their redevelopment of the Chelsea Piers.

Figure 57: East River Park Project by Robert Venturi, 1973

The boat-shaped recreational facility, reached from shore by way of two gangplanks, was to include softball and football fields, basketball courts, children's play areas, a community garden, and cafes. "Towed" behind are a swimming pool and a tugboat. The \$5.5 million scheme was felled by New York's financial crisis in the mid-1970's.⁸⁷



Recent Proposals and Projects Near the Lower East Side

Interest in the future of Manhattan's edge did not come to the forefront until the 1992 New York City Comprehensive Waterfront Plan. This plan outlined possible waterfront uses and offered a view of what could happen.⁸⁸ With renewed vigor the residents responded well. This in turn forced the Waterfront Zoning Reform of 1993 along with acts and recommendations by the Department of City Planning. The new zoning for the waterfront was developed by elected officials and state, federal, and local agencies as well as members from the American Institute of Architects, the Parks Council, the RPA, the Port Authority, the Municipal Art Society, and the Real Estate Board of New York. The following is an excerpt from the Waterfront Zoning Reform:

First the zoning calls for all new residential and commercial developments in medium-and high-density waterfront areas to set aside fifteen to twenty percent of their land area for publicly accessible open space... Visual and physical corridors must be created or preserved to prevent the waterfront from being walled off... waterfront zoning stipulates a minimum-coverage requirement as well as height limits in order to avoid "tower in a park" designs whereby building height is out of scale with its surroundings.⁸⁹



Figure 58: View of Brooklyn from the Lower East Side, between Manhattan and Brooklyn Bridges.

Successful projects such as Battery Park City, the Chelsea Piers, and effectively, South Street Seaport have led to a wealth of new ideas and schemes for along Manhattan’s waterfront. Of these new plans, a few border the Lower East Side. Jean Nouvel’s hotel and cineplex was introduced in 1999 and is situated on the old Brooklyn piers facing the Lower East Side.⁹⁰ While currently on hold, the project could become the focal point of figure 58 (above), as viewed from the Lower East Side, if built. To the north of the Lower East Side, Pei Cobb Freed along with Skidmore Owings and Merrill has recently been selected to complete a master plan for the old Con Ed steamplant. The initial idea from Pei Cobb Freed is depicted below. The master plan is for five million square feet of mixed-use development.⁹¹ Although contingencies exist, the project looks to move forward aggressively and with success.

To the south of the Lower East Side, next to South Street Seaport, are two neighboring projects. In early 2000, the Guggenheim Museum unveiled Frank Gehry’s latest design (pictured in figures 60 to 62). Gone from “thinking” about building it to seeking proper approvals, the new Guggenheim has secured most of the funds as well as city backing (along with \$67.8 million in city supplied financing).⁹² Finding itself among the elite museums of the world, the Solomon R. Guggenheim Foundation has found need to increase its presence due to its ever expanding collections. “Two years ago [1998], in light of the institution’s own programmatic needs and broader debates concerning the very future and definition of museums, the architectural firm of Frank O. Gehry and Associates was selected to participate in giving shape to a new Guggenheim Museum for New York.”⁹³ In accordance with New York’s new Waterfront Zoning,

Figure 59:
Pei Cobb Freed scheme for new development on the East River.



Gehry stated that this would not be a copy Bilbao, and would blend into the waterfront. In referring to Manhattan's famous skyline, Gehry was quoted as promising to be a good neighborhood.⁹⁴

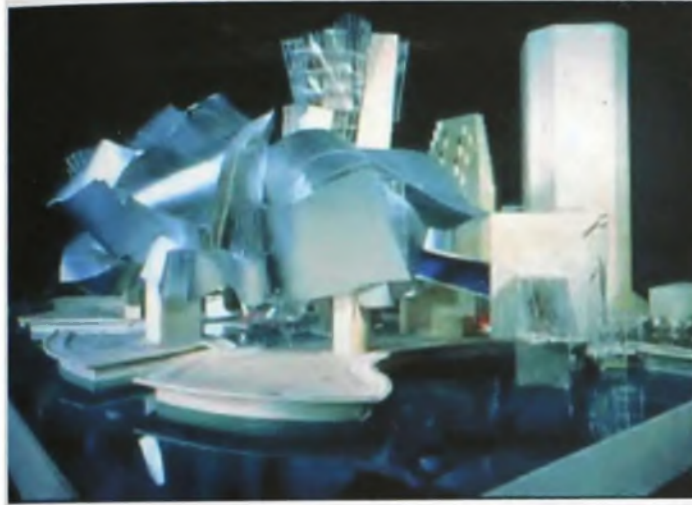


Figure 60:
Model for the new Guggenheim for New York

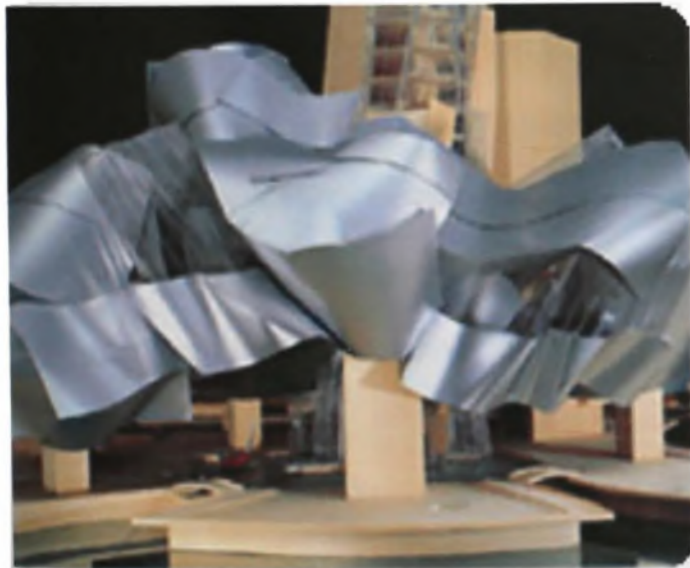


Figure 61:
Model for the new Guggenheim for New York

Figure 62:
Interior view of Gehry's Model for the new Guggenheim





Figure 63:

Regardless of one's feelings on 'blob-itecture', Gehry's new Guggenheim would add a powerful presence to Manhattan's shore. While arguments exist on both sides of the sensitivity to place question, Gehry offers his vision. The scale of new museum correlates to the surrounding scale of lower Manhattan (as visualized in figure 63), with the ribbons softening the edges. "The rigid forms characteristic of a skyscraper—the quintessence of New York architecture—are fractured and recombined with a curvilinear body suggestive of the water's fluid movement and the energy of the city."⁹⁵ Gehry also adds that the museum's public function on the waterfront is central to its design.

If constructed upon its intended site, Gehry's new Guggenheim could be accompanied by the planned Museum of Technology Culture. Depicted in figures 64 and 65, the museum by Asymptote Architecture would, it is believed, complement Gehry's blob-itecture. The Asymptote-designed museum focuses on "late-20th Century technology in relation to the human condition".⁹⁶ The museum's intention is to treat technology as art. Though Asymptote's design does not delve into the same civic responsibility as Gehry's Guggenheim, the design does hint at the area's shipbuilding past. However, that is where the connection stops, likening Asymptote's Museum to Venturi's park.

Figure 64: Asymptote's Museum of Technology Culture

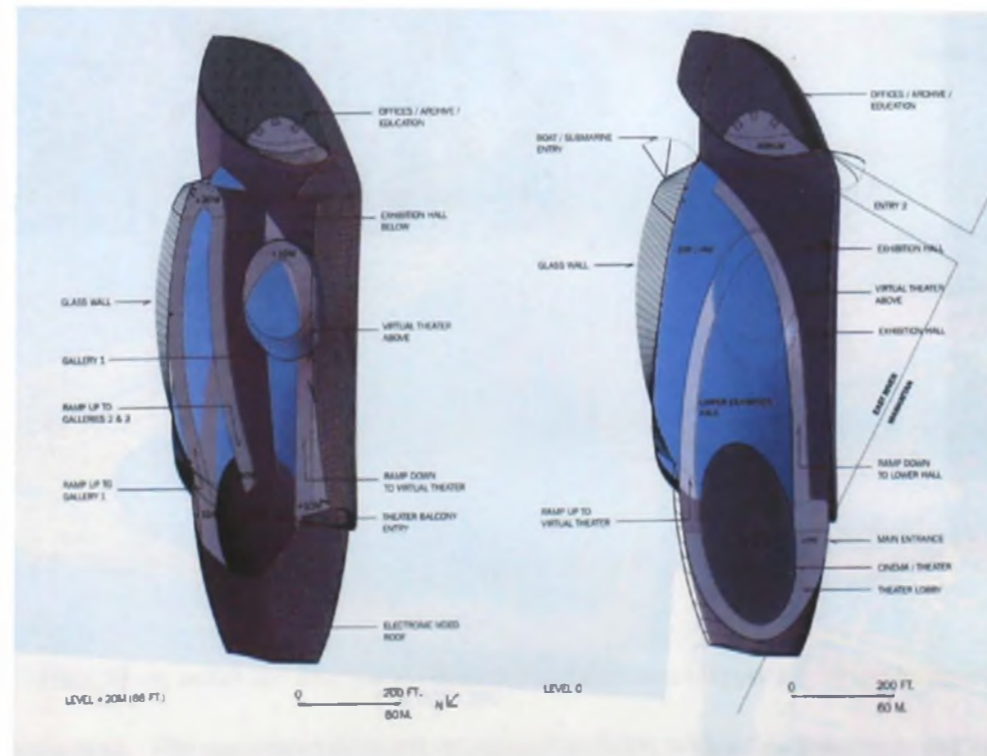


Figure 65: Plans for the Museum of Technology Culture

Current Conditions of the Site

The question now becomes, how does this affect the Lower East Side and its waterfront? Is a museum proper for the non-commercial area? What about retail-entertainment complexes? Most likely not, for the area would not benefit from such commercial development that would compete with South Street Seaport and its own historic district, which includes a large shopping area. As stated in the beginning, my intent is to reconnect the

Figure 66: FDR Drive along the Lower East Side



neighborhood with its now separated waterfront. In the context of the Lower East Side, this reconnection is the joining, or linking, again of the community to its once thriving waterfront. As figure 66 shows, FDR Drive is a wall separating the residents from their waterfront. Even with the addition of the bike and pedestrian path, the elevated highway restricts access to the water. Additionally, the space under the highway has become one long parking area (mostly for the city's D.O.T. vehicles), and is enhanced by the chain link fence separating it from the surface street (figures 66 and 67).



Figure 67

In the late 1980's to mid-1990's, the area known as DUMBO (down under the Manhattan Bridge overpass) was frequented by the homeless, teen runaways, gangs, and drug dealers/users. Fortunately, community involvement and increased police enforcement have cleaned-up the area. The waterfront does see occasional activity, with a few joggers or cyclists, and even a few families and tourists walking along the river, nightfall however brings very little activity (legal anyway). Although, it is important to note that more and more people are discovering the esplanade and bikeway, and that pedestrian usage has dramatically increased over the last few years.⁹⁷



Figure 68
The Lower East Side between the Manhattan and Brooklyn Bridges



Figure 69

Thesis Project Introduction

It is my intention to focus on the Lower East Side waterfront that lies between the Brooklyn Bridge to the south and the Manhattan Bridge to the north (refer to the photographs above). Determined to reconnect the community with its waterfront, I am faced with the question of what to do with the elevated FDR Drive. A trend for cities today is the desire to reposition highways so that they do not detract from the waterfront. Boston is currently in the middle of such a massive undertaking, relocating an existing major roadway underground. Portland, Oregon shifted a waterfront expressway to the opposite side of its river in order to give preference to a park and other public amenities along that river. Major cities in Europe, such as Oslo, Cardiff, and Dusseldorf have all moved major thoroughfares to tunnels in favor of preserving their waterfronts.⁹⁸ The quick answer for FDR Drive seems to be to demolish it and create a tunnel that runs from Wall Street to Corlears Hook. Although the space that would be gained from this would allow for lush parks and a wealth of waterfront ideas, not to mention a wide tree-lined street, the cost of such an undertaking would be astronomical. Additionally, what would happen to the connections to the Brooklyn and Manhattan Bridges? Without access, traffic congestion throughout the area would get much worse. Likewise, the surface streets would again become clogged and unsafe.

The idea of a subterranean FDR Drive is not as simple as digging a tunnel and then demolishing the elevated highway. Truly, it would be a civil engineering nightmare. This particular area of lower Manhattan has a plethora of subway and underground rail lines linking Manhattan and Brooklyn. In addition to this, there are an unknown number of sewer lines, water run-offs, and various other systems (some date back to the Dutch settlers). Add in the numerous heating, oil, and steam pipes, the subway vents, the water lines, the sewer and waste lines, and telecommunication lines and conduits—all transverse the area to unknown depths⁹⁹. Now it might be possible to map the underground area with today's technology (especially with the military advancements with radar). However, this just adds to the cost of such an arterial project. Assuming that cost was not an issue and depth could be determined, then the concern becomes the connections from the bridges as well as the exits between the tunnel and the surface streets. The logistical nightmare continues. Given that valid arguments can be made for and against a tunnel-ized version of FDR Drive, there are other possibilities worth examining.

Figure 70: The elevated FDR Drive

Note the remains of the old pier structures along the bulkhead.



Creating a Robert Moses era parkway seems like a suitable alternative. Like it was originally planned, a wide landscaped surface boulevard in lieu of the elevated highway would not only allow for vehicular travel but would also maintain the connections to the bridges. Pedestrian walks on both sides of the parkway, along with elevated crossovers would increase access to the waterfront and allow for visible and physical corridors. Without question, a divided roadway with landscaping would add a sense of community to the area and would visually reconnect the waterfront. Likewise, the existing bike esplanade could be reconfigured into one long continuous greenspace, connecting Pier 17 to Corlears Hook and the East River Park. However, would traffic congestion increase? Tree-lined boulevards are historically credited with slowing traffic, and this would cause commuter problems for New Yorker drivers. With slower speeds and stoplights associated with a surface road, traffic congestion would increase during the commuter rush hours and peak delivery periods. This in turn may be detrimental to the pedestrians attempting to access the waterfront or esplanade (unless elevated crosswalks are added). Though it has concerns, a surface level FDR Drive does work for New York, which is evidenced near Corlears Hook where the Drive becomes a surface street as it continues northward. So then the debate is over who takes precedent—the commuter or the community?

Another alternative would be to leave the elevated highway, while finding ways to open the wall. Key to the waterfront is access. An elevated highway in theory allows for access underneath it—an opportunity lost in the current Lower East Side. Thus, remove the fence and the ability to park under the highway and you are at the starting point of an even greater prospect. Current surface streets that parallel the Drive's western edge could

be enhanced with landscaping. Using newer bridge building techniques, the highway supports could be restructured and spaced further apart. This would then allow for the perpendicular streets to regain their connection to the river and their former slips. With this, the elevated highway could be raised further, not as a 'hump' in the middle, but as a gradual increase between the bridges. In addition to increased sunlight penetrating the area underneath the FDR Drive, those same perpendicular streets could recapture their view corridors, at the pedestrian level, as outlined in various waterfront reforms and planning initiatives. Extending the current esplanade over the pilings of the old East River piers (refer to figure 70) would add land for parks, housing, and public amenities. The expansion and greening of the existing bike esplanade could act as a buffer, as would the addition of park spaces, playgrounds, and other public amenities. The addition of waterfront housing would not only add to the community aspect of the Lower East Side, but would also help to alleviate some of its overcrowding. As stated earlier, the Lower East Side has a history of overcrowding. Today, the neighborhood welcomes those from China and Mexico, who come to New York to work in various service-related industries. As the new immigrants arrive, they quickly fill the inland most areas of Lower East Side, as well as the neighboring communities. In addition to this, there has been a return of the middle-class to the area, with one or two new apartment buildings geared towards them. New waterfront housing would allow for more people to live in the Lower East Side, add to the reconnection of community and waterfront, and keep the middle-class from taking over the older apartment buildings (forcing lower income people out). It would add a balance.

Whether an apartment overlooking the East River in Manhattan, a warehouse loft in London on the Thames, or a high-rise on Chicago's Lake Michigan, "people will continue to settle along the water... [a]s a consequence, the tension between private and public interests with respect to that most public of resources will continue and most likely, increase as communities seek to redevelop their waterfront".¹⁰⁰

In examining the questions that were developed for the test models, additional housing along the waterfront is deemed valuable to the Lower East Side. The previously stated history of the area and its waterfront, tells the story about the previous connections between the river and the community, and how the connection was broken with the construction of the elevated highway. The shipbuilding and maritime history of the area establishes the historical significance of the area (which South Street Seaport has yet to capture). As for the remaining questions, I feel that a project that proposes to keep the elevated FDR Drive, yet reconfigure its structure will open the waterfront, visually and physically to the community. It will allow for the streets that currently end at a chain-link fence under the highway to reconnect to their former slips in the East River. Expanding the esplanade into the East River, not only adds to the reconnection, but also hints at further design prospects that have a sensitivity to place. With the addition of waterfront housing, at an appropriate scale, some of the burden of overcrowding in the Lower East Side would be alleviated. Redeveloping the 'city in the parking lot' as it was originally intended and relocating vehicular parking to urban infill areas will help to expand the green space from the river's edge to the entire Lower East Side. With this, I conclude that such a proposal would indeed reconnect the Lower East Side with the East River.

Upon completing my research, I met with my committee chair, Professor Camilo Rosales, to determine a plan of action for the semester. After developing a schedule, we decided that further site-specific analysis was needed prior to entering the design phase. This additional research included a traffic analysis and study of the FDR Drive (refer to Appendix C) and an analysis of the surrounding buildings (refer to Appendix D). At this time I also started to develop a program for the design aspect of the thesis. Realizing first that the goal of my design would be to reconnect the Lower East Side community with the East River, I had to resolve the previously recognized problem—FDR Drive.

As alluded to earlier, my method for removing the barrier that divides the neighborhood and the waterfront was to further elevate the highway and redesign the structural members. By increasing the clear height under the FDR Drive from 18 feet to 30 feet, more natural light will be able to penetrate the space underneath. The added height also allows for better view corridors. The height increase would be gradual so as not to create a hump-like structure. Redesigning the structure will not only help lighten the Drive in appearance, but also allow for support pylons to be placed in accordance with the view corridors and site axis. More light and better views will increase access to the waterfront and thus the East River will be perceived as being closer to the neighborhood.

Wanting to span a great distance with minimal structure or with a structure that looked light, I turned to the works of Santiago Calatrava.¹⁰¹ His asymmetrical arch designs, pictured below, greatly influenced my ideas for the new FDR Drive. Such works as the Oresund, Orleans, and Alcoy Bridges used the arch as the main structural component yet the arch was not overbearing or heavy-looking. However, my design required the ability to

Figure 66: The Oresund Bridge



Figure 67: The Orleans Bridge

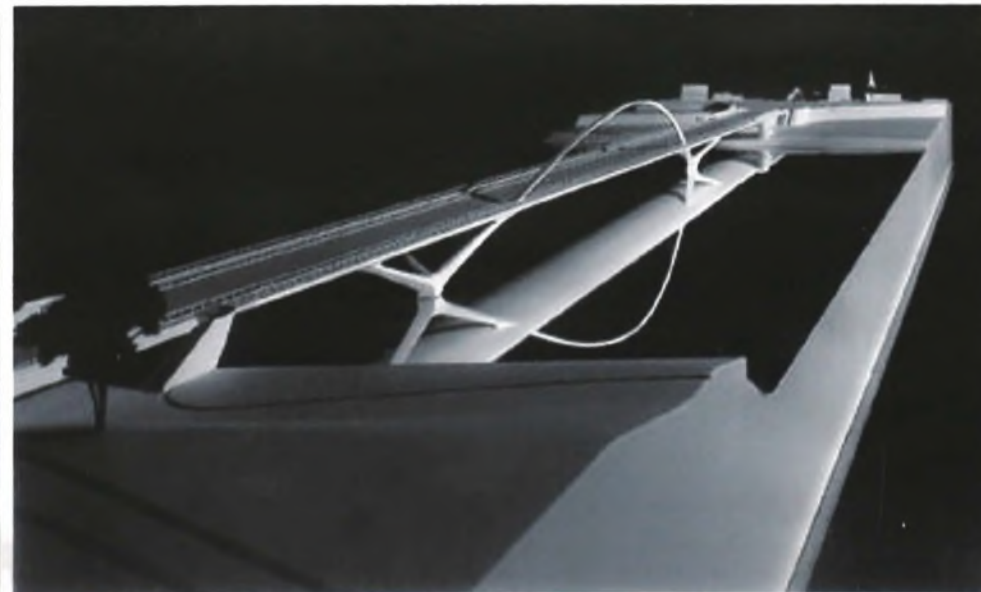
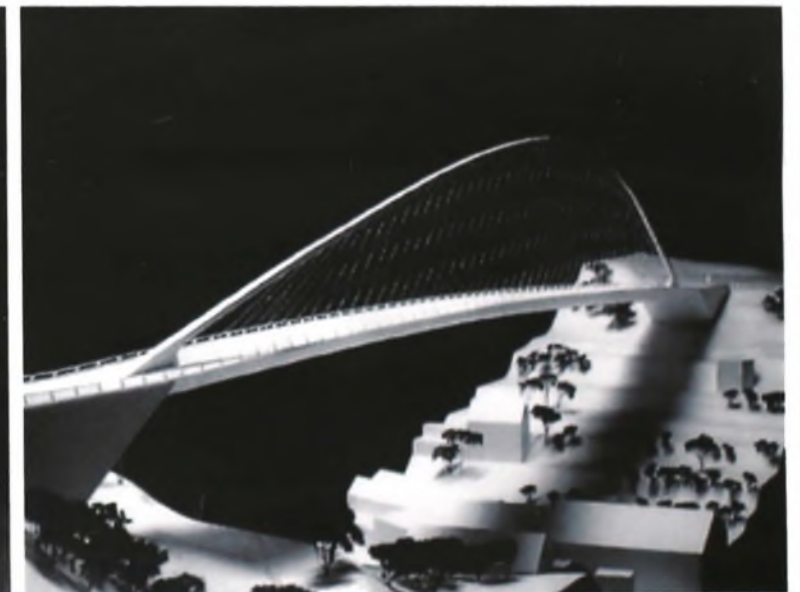
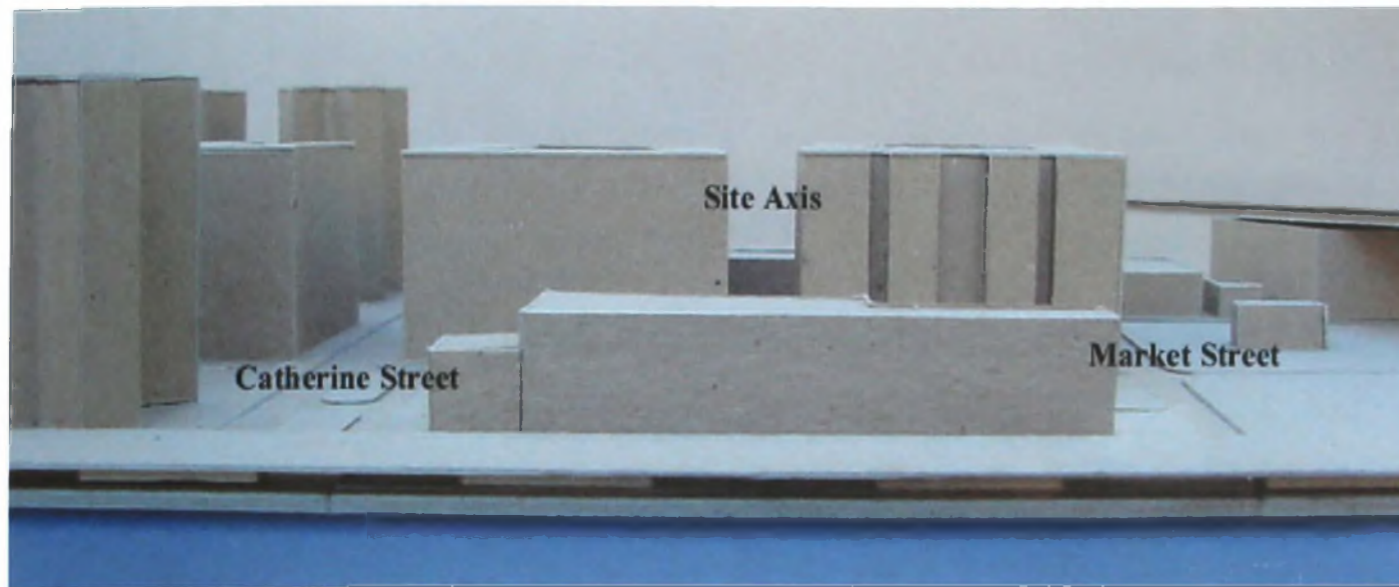


Figure 68: The Alcoy Bridge



span nearly 700 feet along the main span in order to maintain view corridors and access from the central site axis, as well as Catherine and Market Streets (see figure 69 below).

Figure 69



While starting to develop an asymmetrical arch design for my project, I discovered Calatrava's design for the East London River Crossing, pictured in figure 70 below. The span of the arch is over 900 feet yet was shallow at only 75 feet. Additionally, the distance between the abutments was over 1,500 feet.



Figure 70: Calatrava's East London River Crossing

After designing a triple arch system with a secondary space frame for road surface support, I sought the advice my third committee member, structural engineer Luke McGregor. At first he was unconvinced that I could span such a distance. However, once he studied the structural designs of Calatrava's bridges, he felt confident that such a design would work. Shown in elevation on the next page, the design consisted of three asymmetrical arches. The central arch spans 640 feet, is angled 60° to the east, and peaks at 60 feet above the street level. The north and south flanking arches each span 320 feet and are angled 60° to the west. These two arches peak at 45 feet above street level. Figures 72 and 73 show a partial rendering of the road surface support spine, designed to relieve torsional loads.

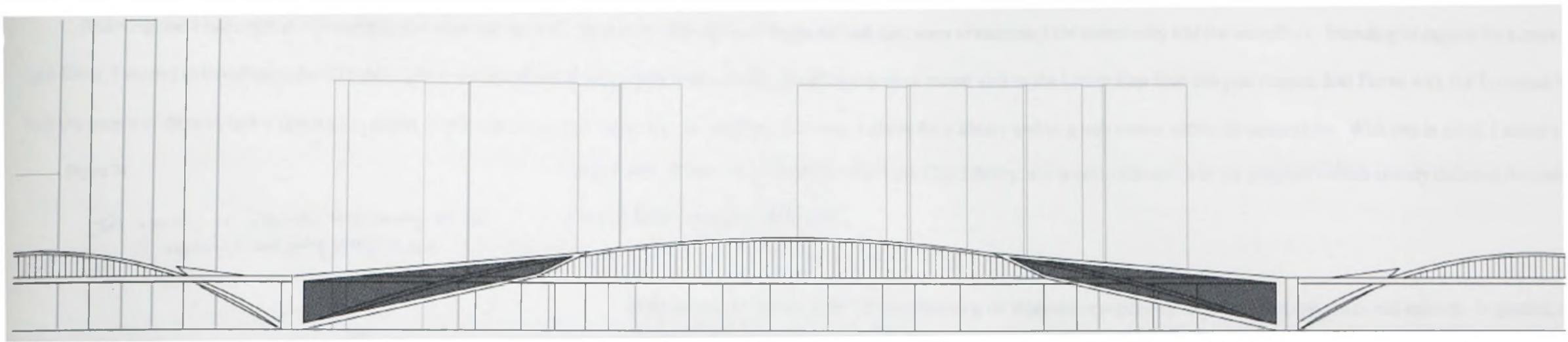


Figure 71

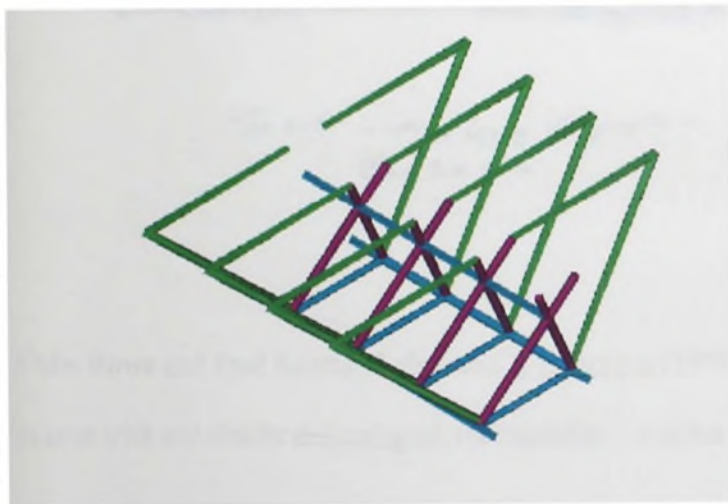


Figure 72

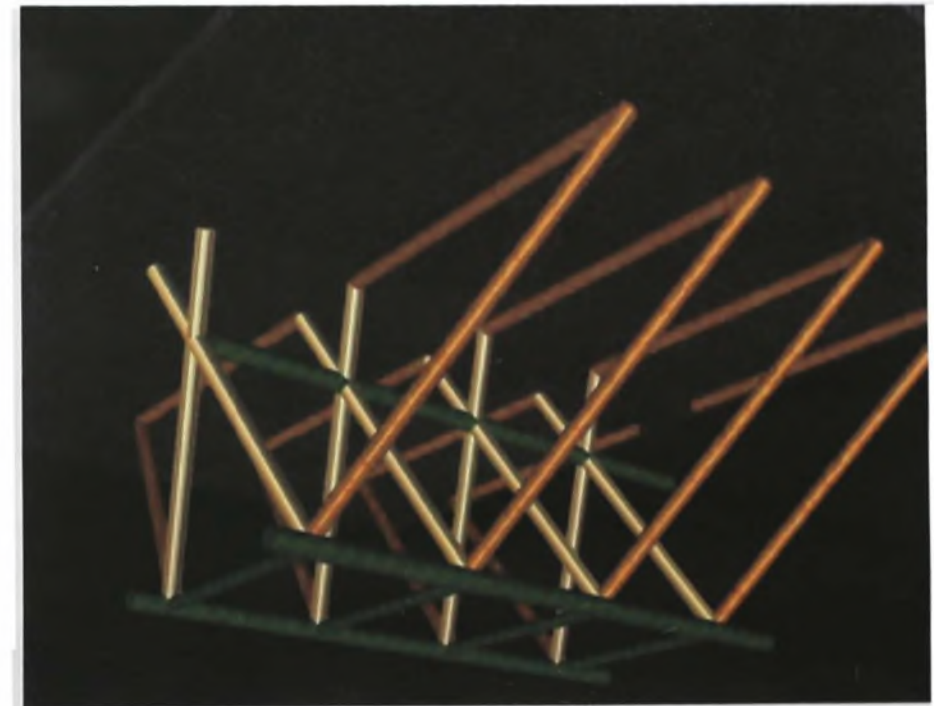


Figure 73

Believing that I had resolved the problem and removed the wall that was the FDR Drive, I began to look into ways to reconnect the community and the waterfront. Intending to expand the Lower East Side into the East River, I wanted to introduce water into the existing neighborhood as well (refer to figure 74). Recalling my most recent visit to the Lower East Side this past August, Joel Ferree with the Tenement Museum¹⁰² spoke of how the people of the area lack a community center—they have no central place. He also said that there was a desire for a library and/or a tech center within the community. With this in mind, I added a new community

Figure 74



center with offices, a branch of the New York City Library, and a computer center to my program (which already included the newly designed FDR Drive and the expanded esplanade)

Midterm review was positive yet the scattering of ideas and components required me to step back and refocus. In general, the comments made by Professor Rosales, Professor Marilyns Nepomechie, and Luke McGregor were positive, however, we all agreed that each component—the FDR Drive, the parks, the esplanade, the community center, the waterfront—could each become their own design project. My thesis, my goal, is about reconnection. How to reconnect the Lower East Side to its former waterfront? My role as designer was one of urban planner and this was as urban design project. I was told to not get caught-up in the details of designing every little aspect, but to redesign and reconnect the community. Yes, FDR Drive was a part of this, a very necessary step, but I am not to concern myself with every element of its design. There are many issues within the existing site context and that is where I should refocus my design.

With the few weeks that remained, I assumed the role of urban designer. On the suggestion that I read and take notes on *Collage City* (1978), by Colin Rowe and Fred Koetter, I also read *X-Urbanism* (1999) by Mario Gandelsonas. Taking the notes from these two sources along with the comments from my review, I began to develop a series of site programs that were in tune with my clearly defined goal, reconnection. A series of interim meetings with the members of my committee led to a number of process designs. In the end, these informal critiques led to a successful final design.

The Thesis Design Project

Resolving the problem of FDR Drive being a wall that removed the Lower East Side from its waterfront, the new Drive is composed of 3 pairs of symmetrical arches. The drive is no longer the event along the river's edge, but a moment that happens through the area. Expansion of the existing bikeway and esplanade into the East River establishes a continuous green corridor connecting Pier 17, South Street Seaport, and Gehry's new Guggenheim for Manhattan with the rest of the communities along the river as it proceeds north, past the Lower East Side. Reminiscent of the rich maritime history of the area, Catherine Street and Market Street have regained their former slips. These two piers extend the neighborhood while providing new cultural, recreational, and entertainment components as well as new ferry terminals (refer to Appendix E)¹⁰³. The slips also become

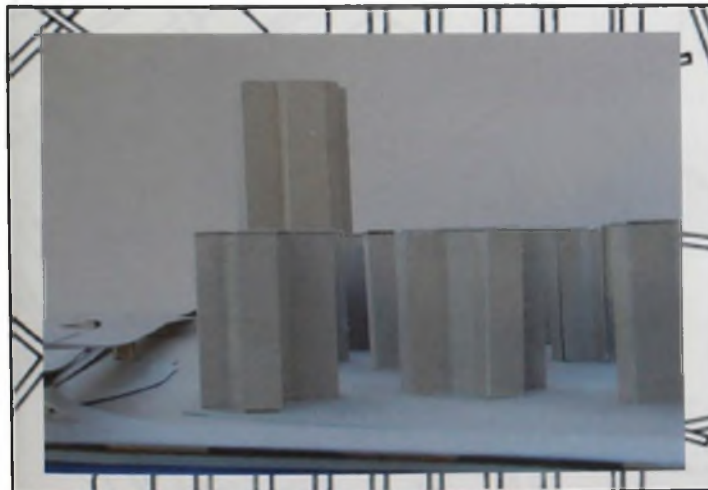
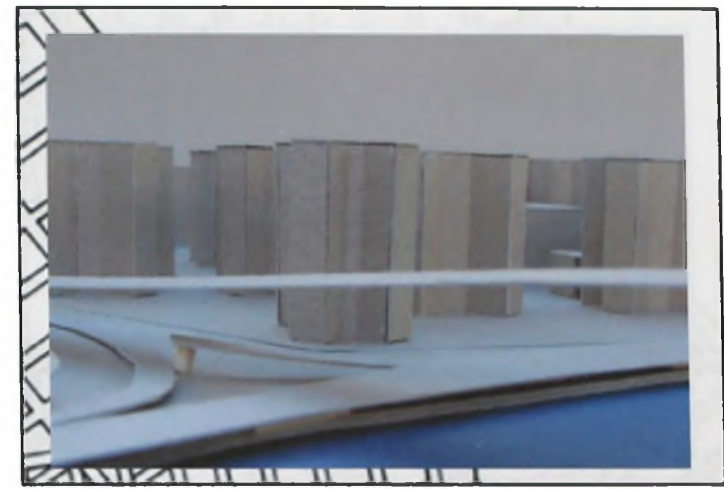
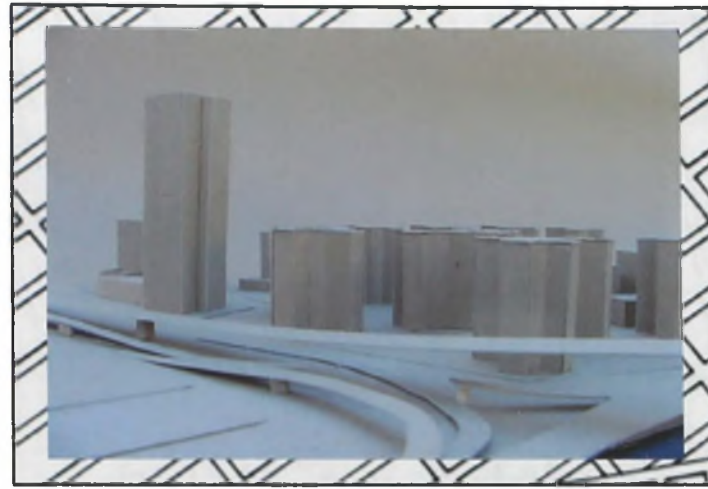
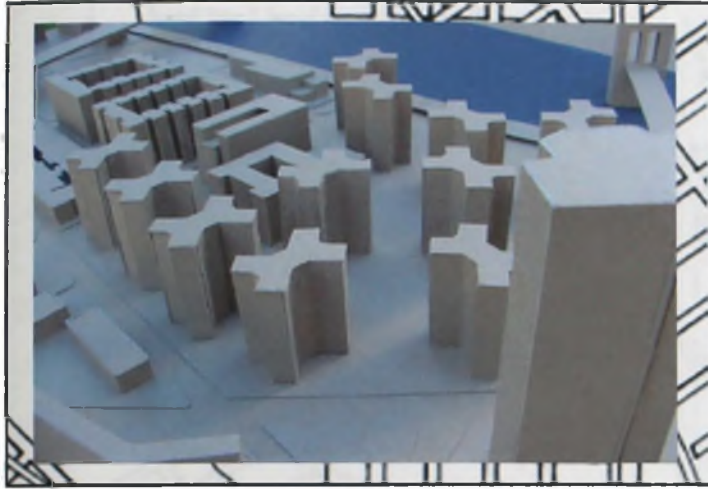
the connector to the new Two Bridges Island Park. Just under a quarter mile in length, the new island park allows joggers, cyclists, and a host of others the opportunity to exercise without traveling uptown to Central Park. The island park also has the space to host a variety of venues from festivals and art fairs to outdoor concerts.

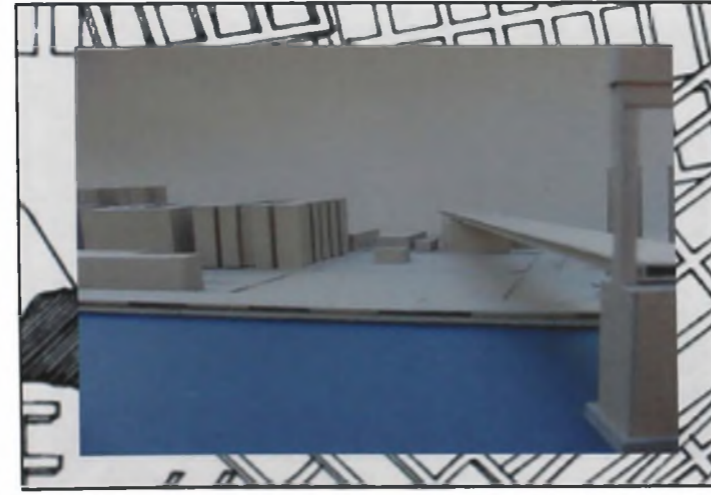
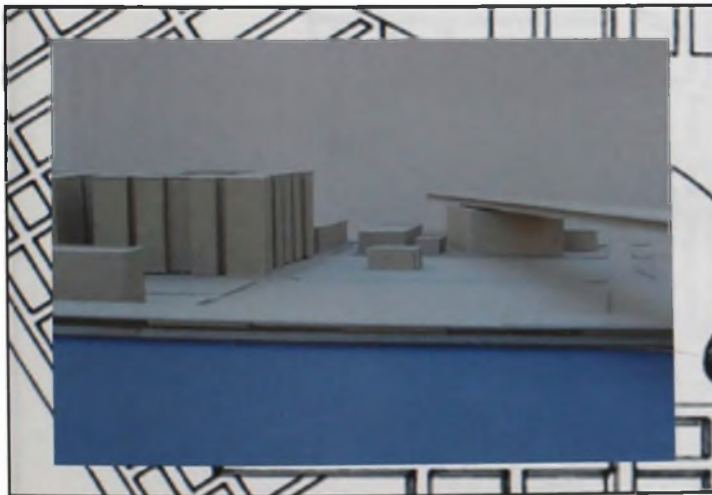
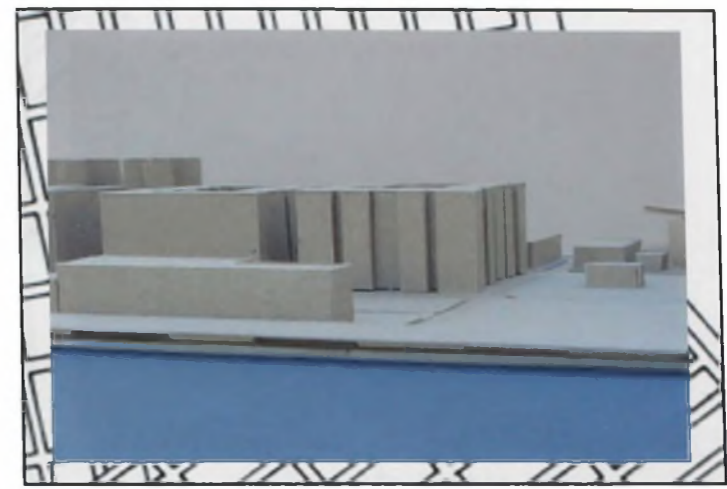
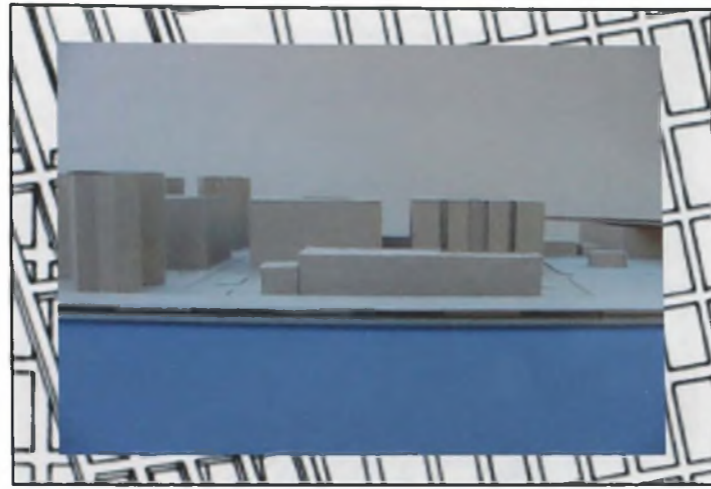
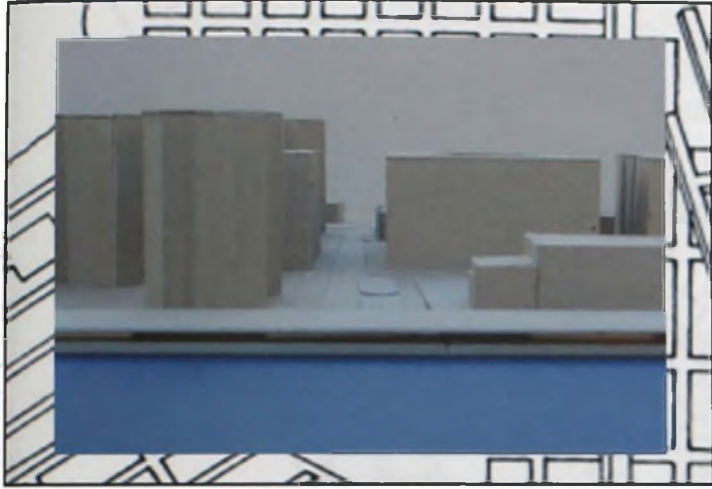
Within the existing city fabric, the Corbusian tower blocks are no longer the 'city in the parking lot', but have become the 'city in the park'. Parking lot removal is aided by new parking structures under the Manhattan Bridge (an urban infill of unused space) as well as on street parking (typical for New York City) and the new street extensions. The former asphalt and concrete fields around the towers are now well-lit, treed areas that offer smaller nodes of park atmosphere and connect to the Two Bridges Island Park.

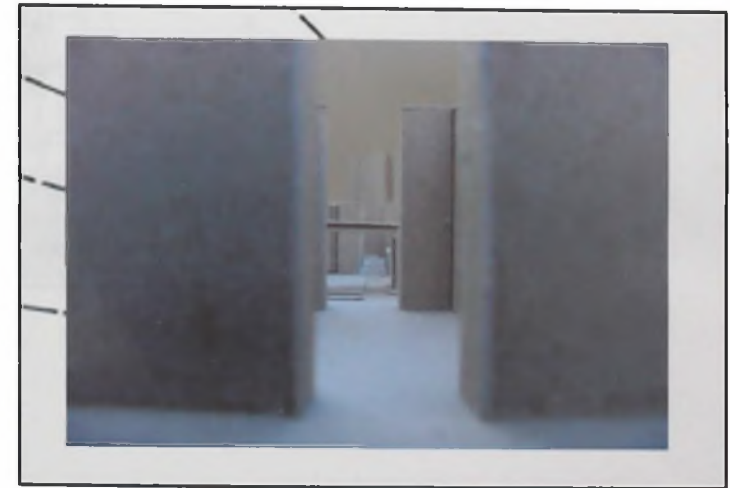
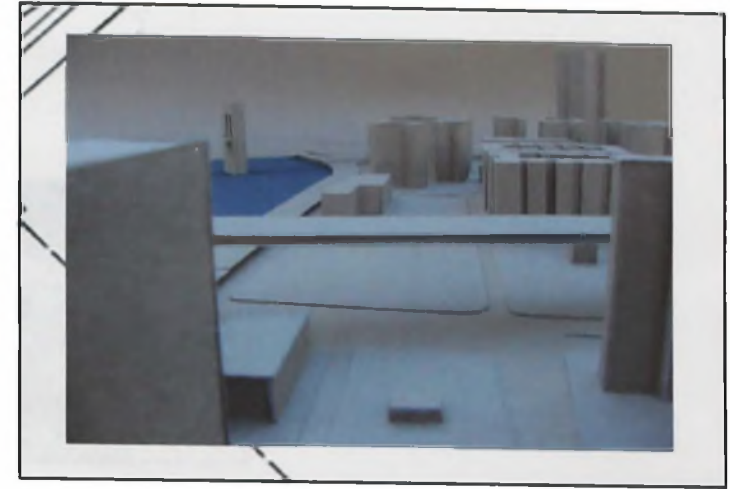
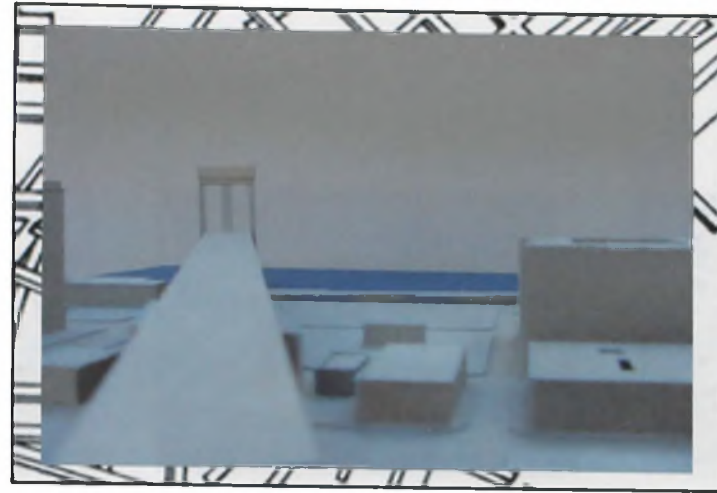
The Community Center is a central figure that helps to tie the area together. It offers a waterfront plaza between Catherine Street/Slip and Market Street/Slip. The creation of new recreational areas allows the underutilized block at South Street and Market Street to be developed into a mixed-use property. The space presents the opportunity for additional housing in a new tower with commercial space and service-oriented businesses residing in the grouping of lower structures around the tower. Additionally, the height of the tower adds continuity to the East River façade and balances the heights of all the blocks along the FDR Drive in the Lower East Side.

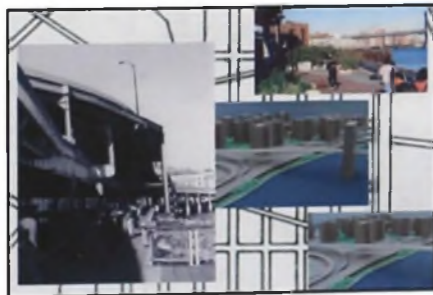
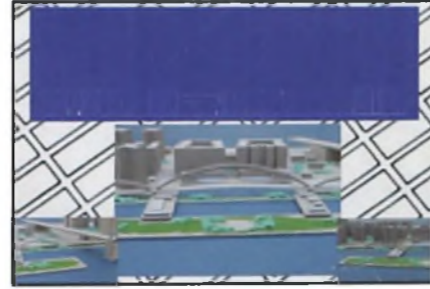
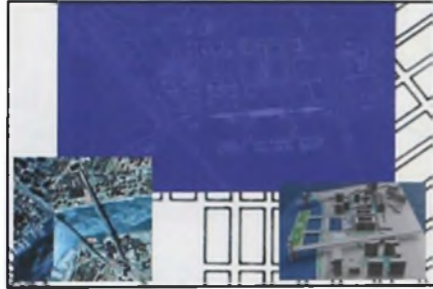
In the end, the community has regained its waterfront and has established a matrix of connections/reconnections throughout the Lower East Side (refer also to Appendix F). The following pages graphically represent the project through a series of drawings, sketches, site photographs, model photographs, and photomontages.

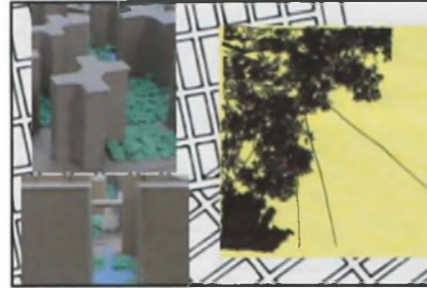
Existing Conditions: Site Model Photographs

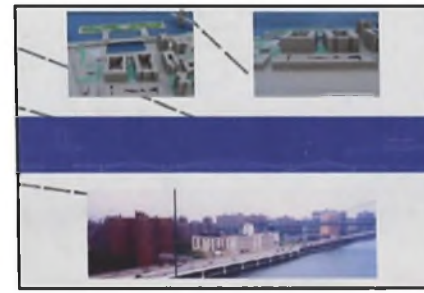
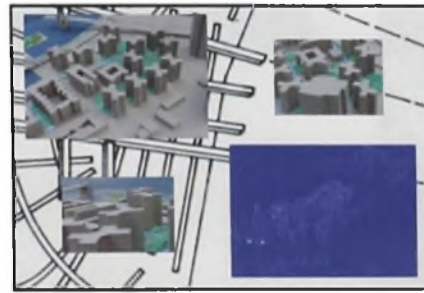
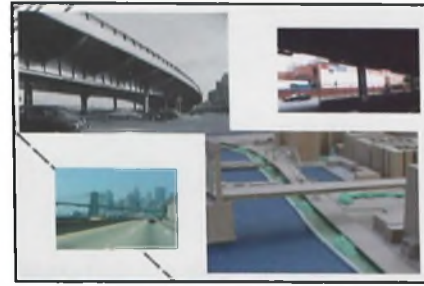
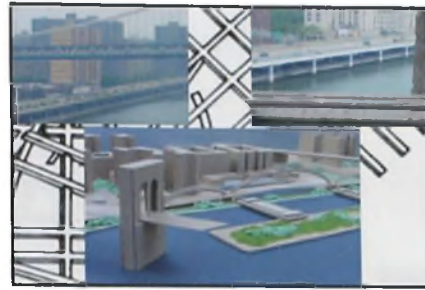
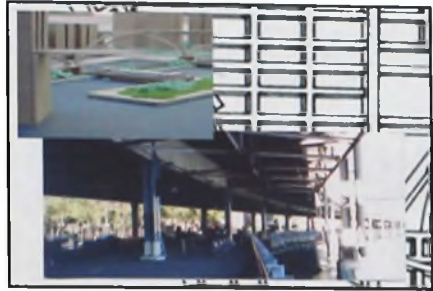






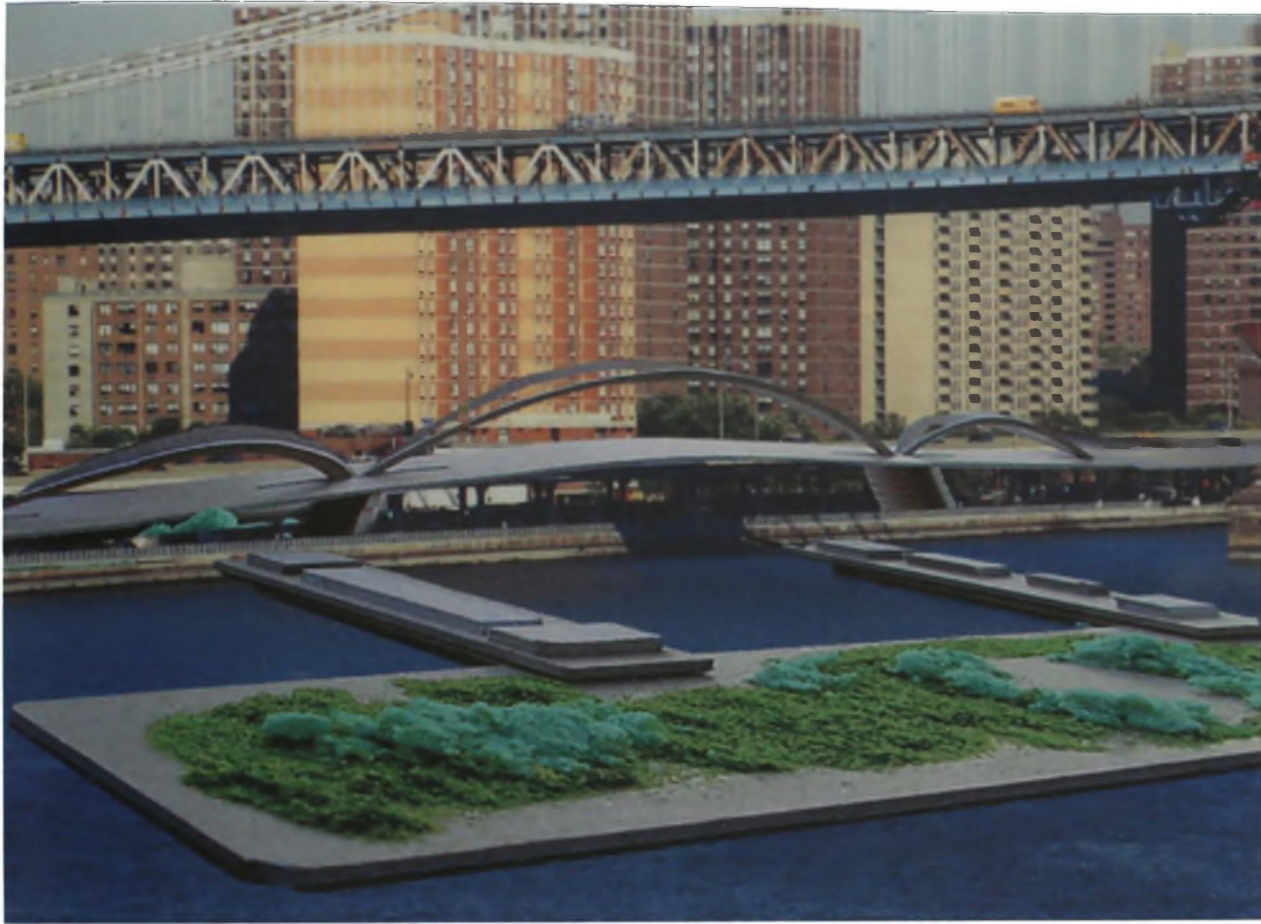




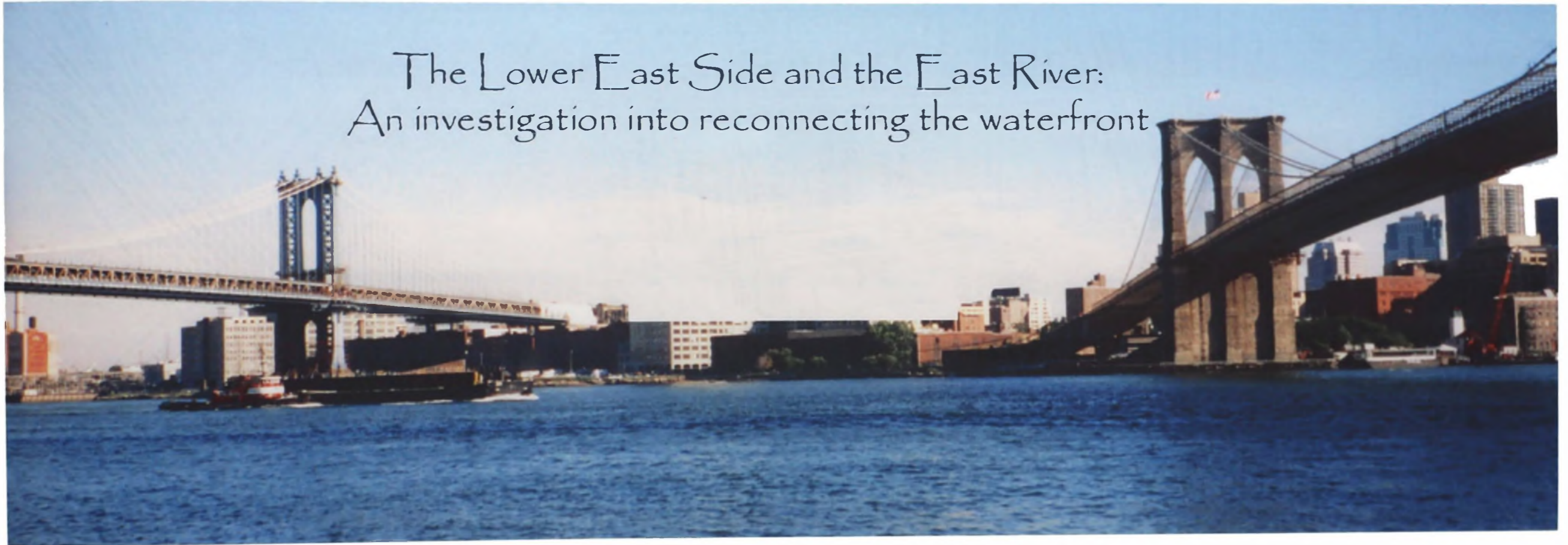


Design Intervention: Photomontage

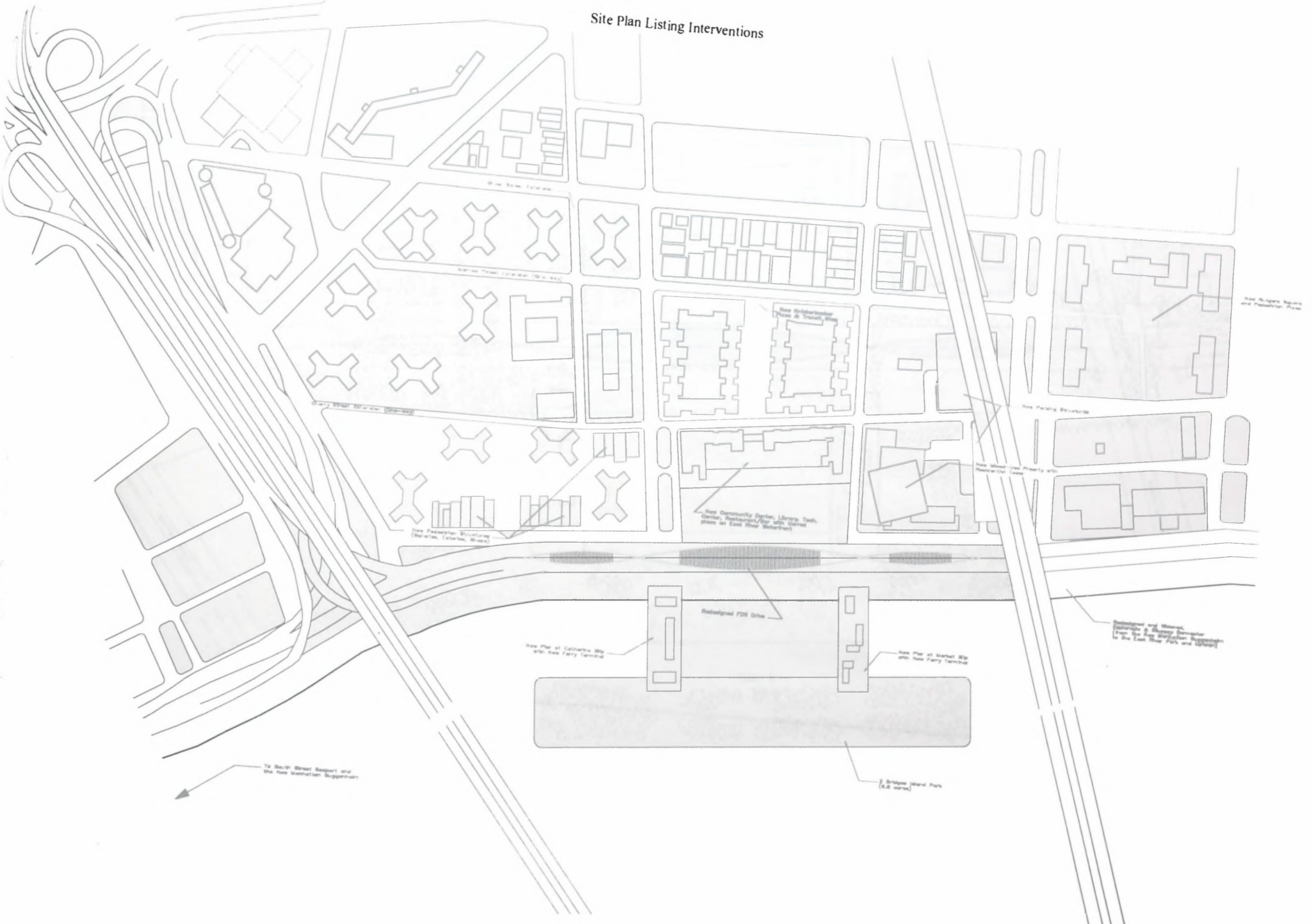




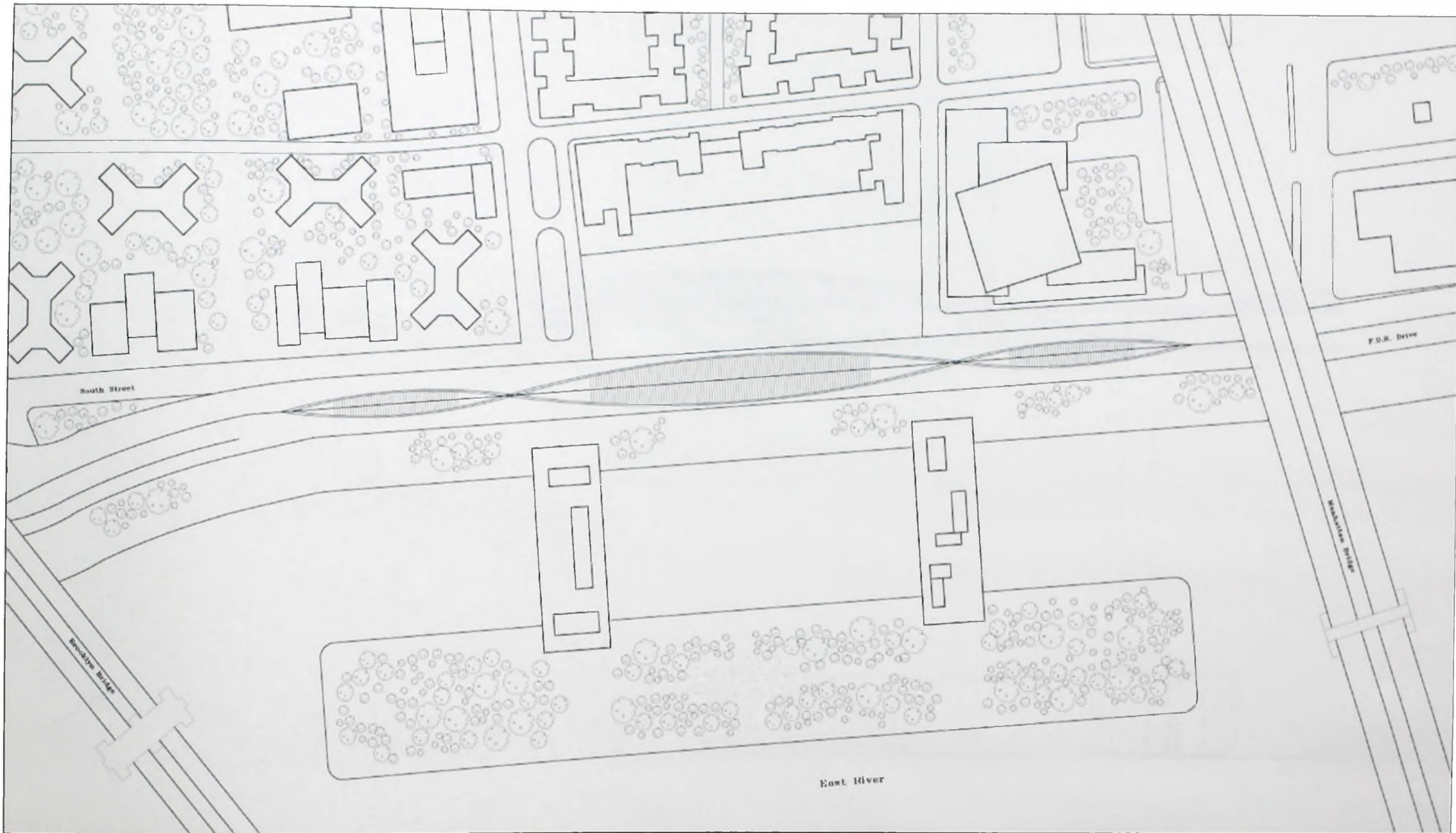
The Lower East Side and the East River:
An investigation into reconnecting the waterfront



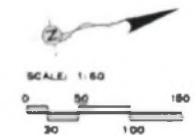
Site Plan Listing Interventions

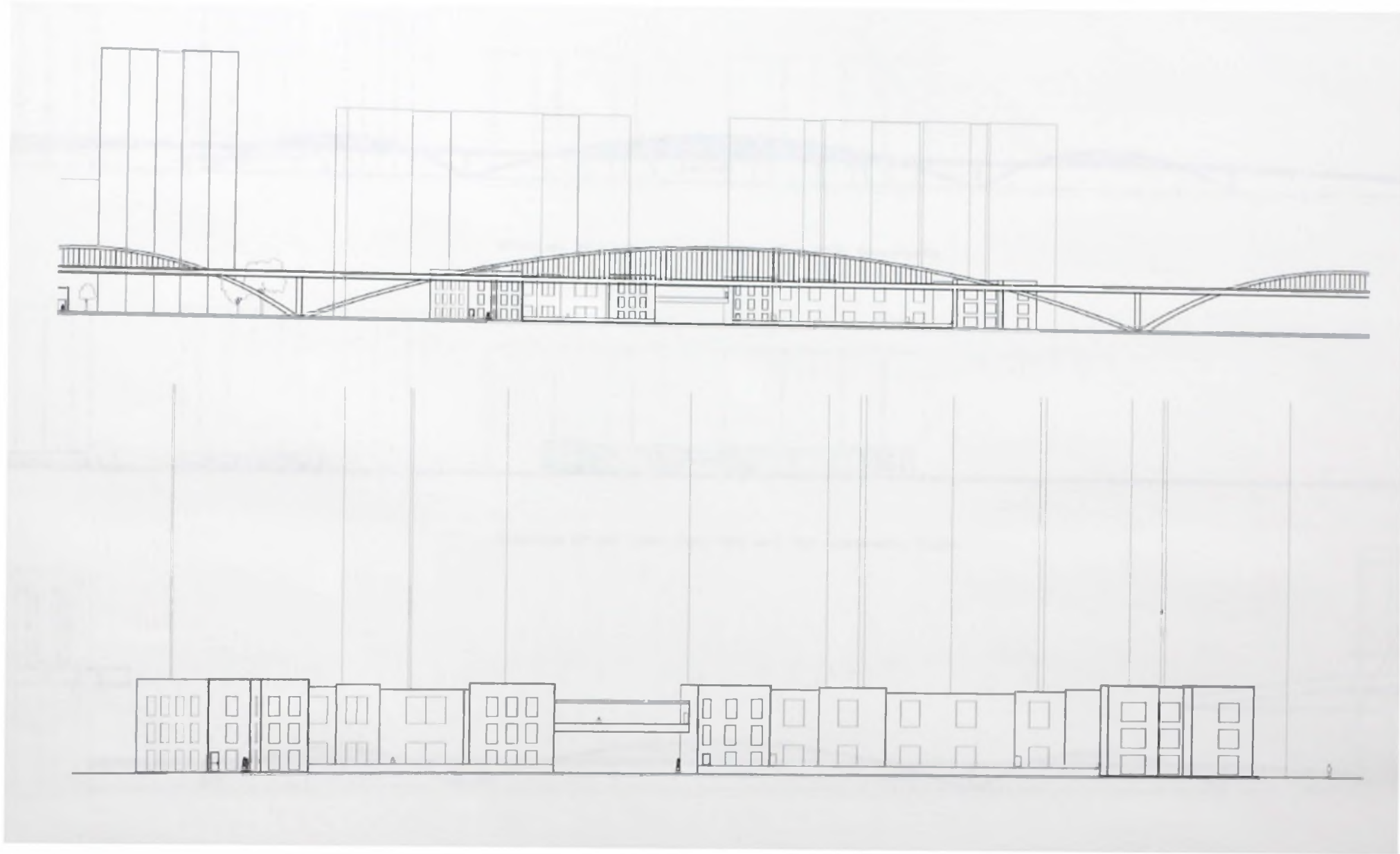


Site Plan, Elevations, and Sections



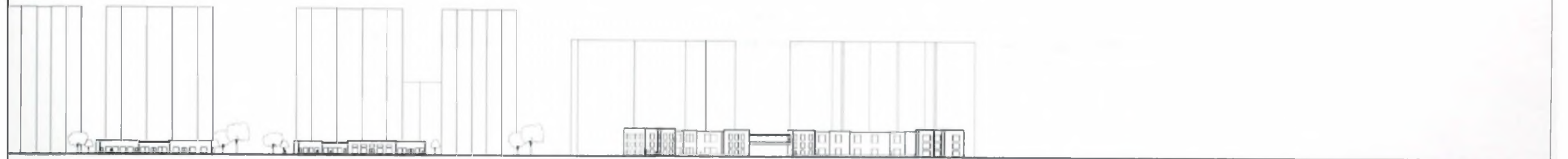
Site: Two Bridges Waterfront
Lower East Side Community
Manhattan, New York



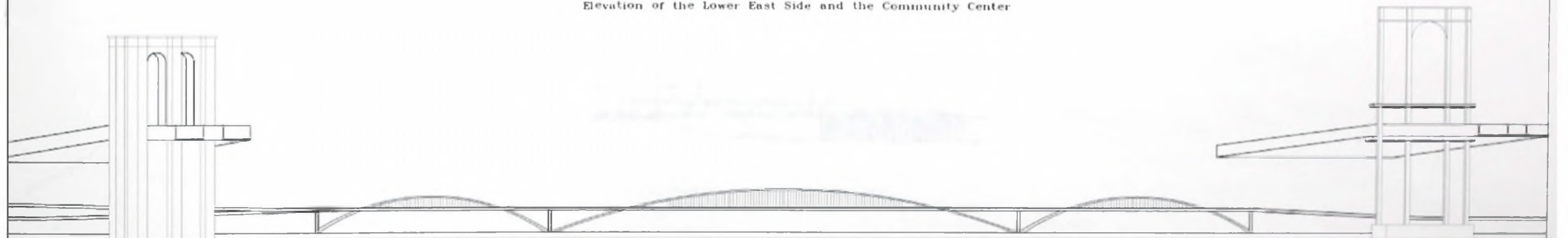




Elevation of F.D.R. Drive and Lower East Side Community



Elevation of the Lower East Side and the Community Center



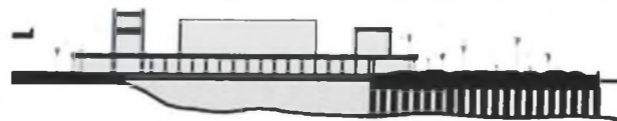
Elevation of F.D.R. Drive and the Bridges

Site: Two Bridges Waterfront
Lower East Side Community
Manhattan, New York

SCALE: 1/80
0 50 100 150



Section along Main Site Axis



Section through Catherine Slip

Site: Two Bridges Waterfront
Lower East Side Community
Manhattan, New York



SCALE 1:60
0 50 100 150

¹ Ann Breen and Dick Rigby, The New Waterfront: A Worldwide Urban Success Story, (New York: McGraw-Hill, 1996), 11.

² Ric Burns and James Sanders, New York: An Illustrated History, (New York: Alfred A. Knopf & Borzoi Books, 1999), xiii.

³ Ibid., 19.

NOTE: Named in honor of the Duke of York to whom the colony was promised as a birthday gift.

⁴ Ibid., 24.

⁵ Ibid., 28.

NOTE: The American component of the French and Indian War, between the English and the French was known as the Seven Years War (1754-63) which ended with the Treaty of Paris (1763).

⁶ **Tory** – name for the American colonists who either sympathized with or assisted the British during the Revolutionary War; a person opposed to the separation of the colonies from Great Britain

⁷ Selma Berrol, The Empire City: New York and Its People, 1624-1996, (Westport: Praeger Publishers, 1997), 23.

⁸ Burns and Sanders, 46

⁹ Ibid.

¹⁰ Ibid.

¹¹ Workers of the Writers Program of the Work Projects Administration for the City of New York, A Maritime History of New York, (New York: Haskell House Publishers, Ltd., 1973), 155.

¹² Ibid., 181.

NOTE: This citation also includes the preceding sentence.

¹³ Ann L. Buttenwieser, Manhattan Water-Bound, (New York: New York Univ. Press, 1987), 49.

¹⁴ Berrol, 55.

NOTE: This citation also includes the preceding two sentences.

¹⁵ Ibid.

¹⁶ Buttenwieser, 69-71.

¹⁷Ibid., 98.

¹⁸Ibid.

NOTE: Included quotes are from Bittenwieser's source: The Report of the Honorable George B. McClellan, Mayor....., (New York: Kalkhoff, 14 December 1904), 7-8.

¹⁹Ibid., 99-100

NOTE: This citation applies to the final three sentences.

²⁰Workers of the Writers Program of the Work Projects Administration for the City of New York, 242.

²¹Ibid., 247-248.

²²Kevin Bone, The New York Waterfront: Evolution and Building Culture of the Port and Harbor, (New York: Monacelli Press, 1997), 77.

²³Ibid., 79.

NOTE: Includes information found in the previous three sentences as well.

²⁴Ibid., 80.

²⁵Ibid.

NOTE: This citation includes information found throughout the preceding paragraph, not only the quotation.

²⁶Workers of the Writers Program of the Work Projects Administration for the City of New York, 263.

NOTE: This citation to include the caption above Figure 17 (see also the List of Figures).

²⁷Burns and Sanders, 471.

²⁸Ibid.

²⁹Bone, 135.

NOTE: This citation includes information found throughout the paragraph, including the quotations.

³⁰**Containerization** – term used to describe the standardization of the cargo shipping industry in the late 20th Century. By setting the sizes of railroad boxcars to a specific standard, trucks and ships could be built in likewise fashion to facilitate the loading/unloading/transporting of goods. This also required new facilities for rail and shipyards as well as the equipment to handle the loading and unloading.

³¹Norman J. Brouwer, "Port of New York," The Encyclopedia of New York, ed. Kenneth T. Jackson, (New Haven: Yale University Press, 1995), 929.

³²Breen and Rigby, 15-17.

³³ NOTE: The new Fulton Market Convention Center and Downtown Meeting Area by the Glazier Group is slated to open in Spring 2002.

³⁴ Brouwer, 926.

³⁵ Bone, 237.

³⁶ Ibid.

³⁷ Ibid., 239.

³⁸ Breen and Rigby, 137.

NOTE: Includes the following sentence as well.

³⁹ Anthony Iannacci, Butler Rogers Baskett: Revitalizing the Waterfront, (Milan: l'Arca Ediziona, 1997), 9.

⁴⁰ Ibid., 10.

NOTE: Includes information found within the preceding paragraph. Due to the site being placed on the Register of Historic Places, stringent guidelines had to be obeyed by the architects.

⁴¹ David L. A. Gordon, Battery Park City: Politics and Planning on the New York Waterfront, (Ontario: Gordon and Breach Publishers, 1997), 66.

⁴² Bone, 205.

⁴³ Gordon, 73.

⁴⁴ Ibid., 78-79.

⁴⁵ Ibid., 83.

⁴⁶ Ibid., 49.

⁴⁷ Ibid., 111.

⁴⁸ Ibid.

⁴⁹ Ibid.

NOTE: This citation denotes that the cited information was developed from generalizations or deductions based on the information acquired from this source.

⁵⁰ Bone, 257-258.

NOTE: This citation also includes the preceding sentence.

⁵¹ Breen and Rigby, 23.

⁵²Susan S. Fainstein, The City Builders: Property, Politics, & Planning in London and New York, (Cambridge: Blackwell Publishers, 1994), 13.

⁵³Ibid., ix-x.

NOTE: This citation also includes the preceding sentence.

⁵⁴Ibid., 43.

⁵⁵Ibid., 194.

⁵⁶Ibid., 195.

⁵⁷Janet Foster, Docklands: Cultures in Conflict, Worlds in Collision, (Philadelphia: UCL Press Unlimited, 1999), 27.

⁵⁸Ibid., 39.

⁵⁹Sue Brownill, Developing London's Docklands: Another Great Planning Disaster?, (London: Paul Chapman Publishing Ltd, 1990) , 54.

⁶⁰Ibid., 63.

⁶¹Breen and Rigby, 20.

NOTE: This citation also includes the preceding sentence. Of the 5 billion, 2.2 billion is said to have come directly from Olympia & York.

⁶²“News,” Architecture, Aug 2001, 31.

NOTE: Article states that the Wellness Trust, a medical charity, is in negotiations with the British Government to purchase the Dome.

⁶³Brownill, 108.

⁶⁴Alan Plattus, Colin Rowe, and Fred Koetter, Koetter Kim & Associates: Place/Time, (New York: Rizzoli International Publications, Inc., 1997), 72.

⁶⁵Ibid., 73.

⁶⁶Ibid., 76.

⁶⁷Brownill, 109.

⁶⁸Harvey W. Zorbaugh, The Gold Coast and the Slum, (Chicago: The University of Chicago Press, 1929), 1.

⁶⁹Dick Simpson, ed., Chicago's Future: An Agenda for Change (Chicago: The Swallow Press Inc., 1980), 474.

⁷⁰Harold M. Mayer and Richard C. Wade, Chicago: Growth of a Metropolis, (Chicago: The University of Chicago Press, 1969), 297.
Lois Wille, born in Chicago and attended Medill School of Journalism at Northwestern University. She reported urban issues for the Chicago Daily News, where her series of articles of health care for indigent women won the Pulitzer Prize for public service in 1963. She is the author of Forever Open, Clear and Free: The Struggle for Chicago's Lakefront.

⁷¹Simpson, 470.

⁷²Breen and Rigby, 84.

⁷³Ibid.

⁷⁴Ibid. 85.

NOTE: Layout for pier derived from this source as well as the Brochure Produced for the Navy Pier by the Chicago Convention and Tourism Bureau, as well as the web site for the Navy Pier.

⁷⁵Janet L. Abu-Loghod, New York, Chicago, Los Angeles: America's Global Cities, (Minneapolis: University of Minnesota Press, 1999), 321.

⁷⁶Burns and Sanders, 246.

⁷⁷Butenwieser, 165.

⁷⁸Ibid. 170.

⁷⁹Ibid. 172-173.

⁸⁰Burns and Sanders, 429.

⁸¹*Robert Moses built 7 bridges during his 44 years in power and it is his Triborough Bridge Project that he is most famous. Moses is also credited with creating the parkway and establishing the interstate guidelines that the federal government would adopt years later.*
—From a reprinted interview with Robert A. Caro. Source: Burns and Sanders, 458-465.

⁸²Butenwieser, 180.

⁸³Ibid. 181.

⁸⁴Ibid. 184.

⁸⁵Ibid. 184-185.

⁸⁶Ibid. 188.

⁸⁷Rebecca Read Shanor, The City That Never Was, (New York: Viking, 1988), xv.

⁸⁸Bone, 227.

⁸⁹ibid., 229.

NOTE: Includes previous listing of those involved.

⁹⁰Herbert Muschamp, "A Bridge Between a City and Its Self-Image," The New York Times, 13 June 1999, AR37.

⁹¹John E. Czarnecki, "Pei Cobb Freed and SOM to plan NYC East River site," Architectural Record, July 2001, 28.

NOTE: Includes all information stated about this project.

⁹²Anthony Mariani, "New Guggenheim Approved for Big Apple," Architecture, January 2001, 29.

⁹³Thomas Kerns, Director, "Project for a New Guggenheim Museum in New York City," @ Guggenheim: The Guide to the Guggenheim Museums, Summer 2000, 8-9.

⁹⁴Soren Larson, "Gehry's Next Guggenheim," Architectural Record, May 2000, 41.

⁹⁵*Excerpts taken from program information available and exhibited along with the 'New Guggenheim for Manhattan' Project, Summer 2001.*

⁹⁶Susan Stefans and Clifford Pearson, "Asymptote envisions a sleek and dynamic Museum of Technology Culture," Architectural Record, December 1999, 92-95.

⁹⁷*NOTE: Personal observation.*

⁹⁸Breen and Rigby, 19-20.

⁹⁹*NOTE: Attempts to acquire information as to the amount of pipes, their direction, or their depth have resulted in the same answers from various city departments—"We are not sure".*

¹⁰⁰Breen and Rigby, 153.

¹⁰¹Sergio Polano, Santiago Calatrava: Complete Works, (Milan: Electa, 1996).
Structural information and images of Santiago Calatrava's bridges were obtained from a variety of sources about his works. The two primary sources were his website (www.calatrava.com) and the above noted book.

¹⁰²*NOTE: Joel Ferree is a tour guide with the Lower East Side Tenement Museum. The Museum is located on Orchard Street in the Lower East Side. Joel is well versed on not only the history of the area but also the current conditions, needs, and desires of the community and its people.*

¹⁰³*NOTE: This past year, ferry transit around Manhattan was steadily increasing. However, the events of September 11, 2001 have led to an overwhelming number of ferry passengers. New routes and stops are being discussed and new ferry companies are seeking the proper licenses to operate in New York. Source of this information came from a variety of news sources, including but not limited to, CNN, NY1, MSNBC, and The Evening News with Dan Rather.*

¹⁰⁴Iannacci.

NOTE: All information contained within this Appendix A, including the figures, was provided by this source.

¹⁰⁵*NOTE: Information on Battery Park City was obtained from a variety of sources, including personal visits to the area. It is important to note, however, that this information can also be found in David Gordon's Battery Park City.*

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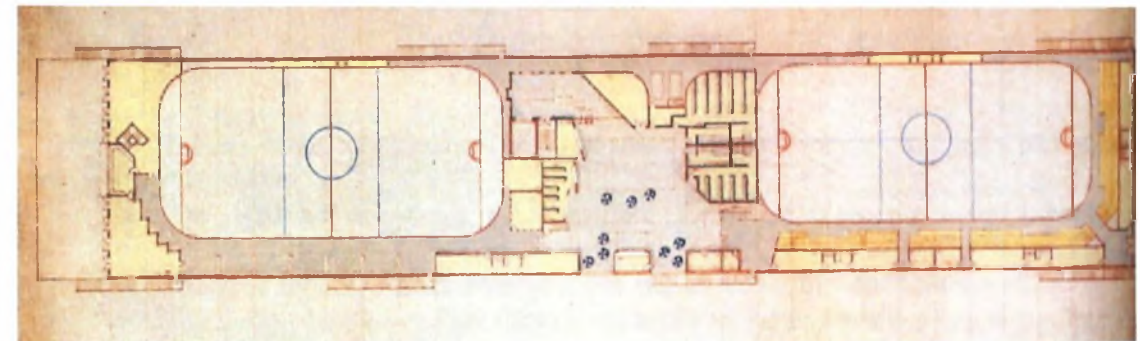
The Chelsea Piers Sports and Entertainment Complex

Butler Rogers Baskett set a highly innovative and creative precedent for the adaptive reuse of urban infrastructures, which would not only have a positive affect on the community, but also on the environment.¹⁰⁴

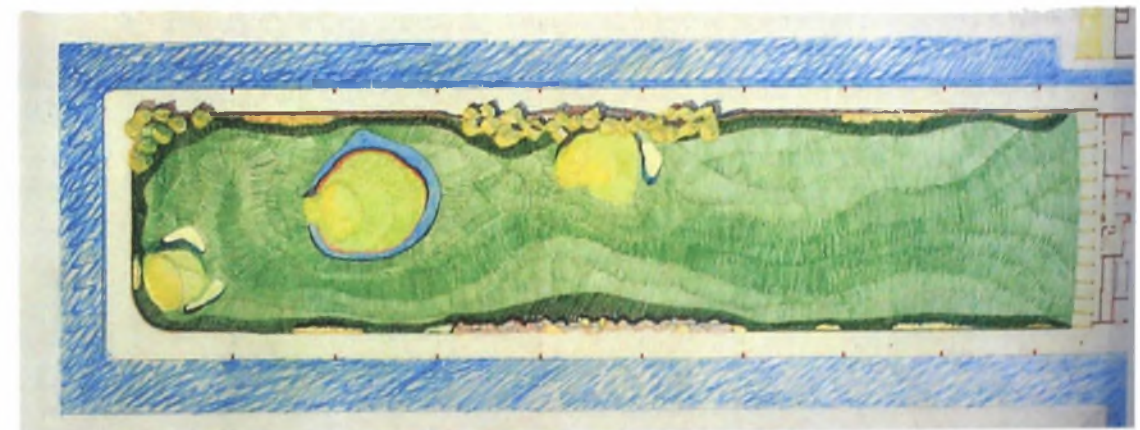
- \$25-30 million spent on infrastructure alone:
 - Electrical service
 - Plumbing
 - Water and Sewer lines
 - Sprinkler, Fire Alarms, and Emergency Lighting
- Since each venue required a unique environmental solution—temperatures ranging from 50 degrees for year-round ice-skating rinks to 80 degrees for the swimming pool to heated outdoor golf stalls—the design of the mechanical and electrical systems for the project presented a major challenge for the architects and project engineers, Cosentini Associates
- Four (4) 880-foot piers and the 90,000 square-foot Headhouse were renovated for both public and private facilities.
- The project reclaimed unused and decaying waterfront structures
- Provided unrestricted public access to the waterfront in the form of a 20 foot-wide, 1.2 mile-long esplanade that runs along the perimeter of each of the piers.
- As the historic use of the piers for transatlantic shipping was no longer appropriate, the State Historic Preservation Office approved usage of the piers for a Sports and Entertainment Complex, yet required the rehabilitation of the historically significant fabric of the piers.
- \$100 million project hosts 8,000 to 10,000 visitors per day, and employees 1,200 to 1,500.
- The Headhouse includes:
 - Chelsea Piers Field House - 80,000 sq. ft. of facilities for gymnastics, team sports, and league play
 - Silver Screen Studios - 250,000 sq. ft. space for sound stages, production offices, storage, studio-support space, carpentry & scenic painting shops, and dressing room
 - Manhattan’s largest fashion-photography facility - 30,000 sq. ft.



Sketch of the Outdoor Park and Skating Area. Pier 62



Plan of the dual rinks found on the Skyrink Pier



Sketch of the layout for the Golf Driving Range Pier

1979 Masterplan for Battery Park City, by Alexander Cooper and Stanton Eckstut

- 42% of the land dedicated to housing
- 30% of the land dedicated to open spaces (including the Esplanade)
- 19% of the land dedicated to streets and avenues
- 9% of the land dedicated to commercial and office space


Future plans called for the construction of a luxury hotel, a Memorial to the Holocaust Museum of Jewish Heritage, a 5th office tower, and more housing. As of this writing, all of these structures have been completed.

The 8 Design Principles for the 1979 Masterplan:

- Battery Park City should not be a self-contained new-town-in-town, but a part of lower Manhattan.
- The layout and orientation of Battery Park City should be an extension of lower Manhattan's system of streets and blocks.
- Battery Park City should offer an active and varied set of waterfront amenities.
- The design for Battery Park City should take a less idiosyncratic, more recognizable, and more understandable form.
- Circulation at Battery Park City should reemphasize the ground level.
- Battery Park City should reproduce and improve upon what is best about New York's neighborhoods.
- Battery Park City's commercial center should become the central focus of the project.
- Land use and development control should be sufficiently flexible to allow adjustment to future market requirements.

Appendix C

Traffic Study and Analysis of the FDR Drive



FDR Drive (South Street Viaduct)


The 6 lane parkway extends 9.4 miles from the Battery in Lower Manhattan to the Triborough Bridge. Posting a maximum speed limit of 40 mph, the roadway is closed to commercial traffic since it was not designed to interstate standards (although bus travel is allowed in limited areas).

Strictly a commuter highway, the Drive averages about 175,000 vehicles/day in Lower Manhattan and approximately 150,000 in Midtown Manhattan.


Informal testing and averaging done by myself during three separate visits to the area where FDR Drive meets the Brooklyn Bridge have produced similar averages for this area.

Peak AM (7-9:30) and PM (3:30-7) Rush Hours account for the most number of vehicles on a given weekday. Important to note that the average climbs to approximately 188,000 vehicles on Fridays. I speculate that this is due to the higher percentage of local New Yorkers "escaping" the city for the outer boroughs as well as Long Island and the Hamptons. Friday's average could also be higher due to the increased number of outer borough, New Jersey, and Long Island residents entering NYC for an entertaining evening.

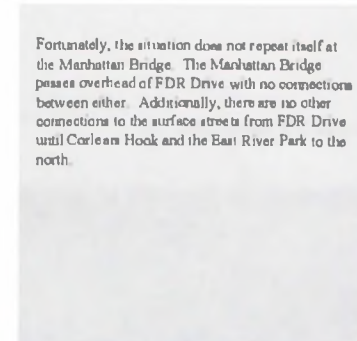
While lacking a 'rush' hour, weekend traffic is not light. However, the increased congestion times shift to the early AM and late PM hours of Saturday and the evening hours (4-8PM) on Sundays.




The Brooklyn Bridge is a 6 lane suspension bridge with a pedestrian cross-walk. The average number of vehicles reaches 64,500 per week day and just under 61,000 per weekend day.



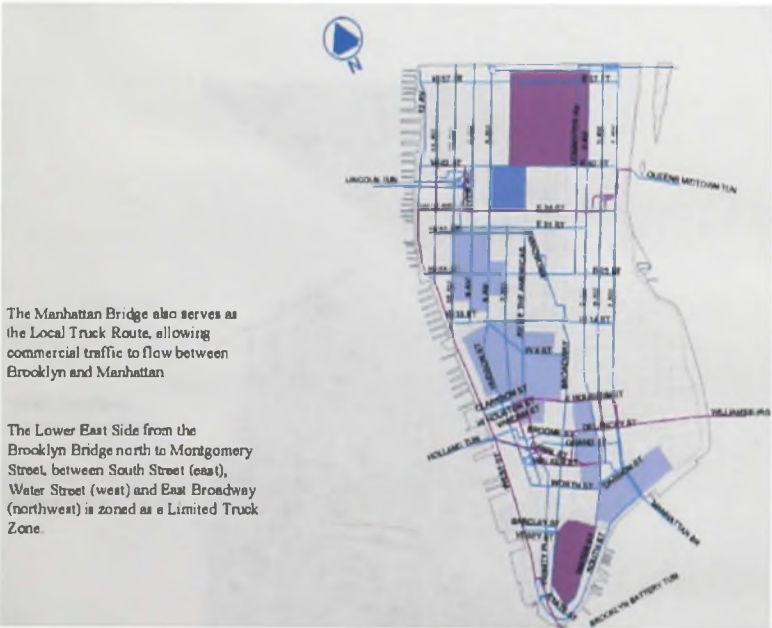
While FDR Drive is a limited access/egress parkway, the area near the Brooklyn Bridge is dominated with ramps. The confusing connections between the surface streets of R. Wagner, Sr. Place, Dover Street, and South Street combined with the on/off-ramps of the Brooklyn Bridge hamper travel in this area and increase commute time.



Fortunately, the situation does not repeat itself at the Manhattan Bridge. The Manhattan Bridge passes overhead of FDR Drive with no connections between either. Additionally, there are no other connections to the surface streets from FDR Drive until Carleem Hook and the East River Park to the north.



Slated by NYSDOT as the "most heavily traveled East River crossing", the Manhattan Bridge's 6 lanes (upper and lower) carry just over 78,000 vehicles per day, inclusive of weekend days.



The Manhattan Bridge also serves as the Local Truck Route, allowing commercial traffic to flow between Brooklyn and Manhattan.

The Lower East Side from the Brooklyn Bridge north to Montgomery Street, between South Street (east), Water Street (west) and East Broadway (northwest) is zoned as a Limited Truck Zone.

The Implications of Raising FDR Drive 12 ft.



Reconstruction of only two (2) ramps at the South Street/Brooklyn Bridge Interchange.

Added height allows for better view corridors.

Added height will also allow more daylight to penetrate the spaces underneath the highway.

More light, better view corridors will also increase the access to the waterfront. Waterfront will be perceived as being 'closer' to the neighborhood.

Redesign the highway supports so that the streets meet the waterfront without physical or visual interruption. This will also increase pedestrian access to the waterfront.







Additional Changes/Revisions to FDR Drive

Remove the standard highway mercury vapor lights and replace with embedded roadway surface lighting. This new lighting system generally lights the road without being a nuisance to drivers nor to neighboring apartments (like the current lighting is).

Under highway lighting to be upgraded as well with an architectural style reminiscent of the area's maritime past.

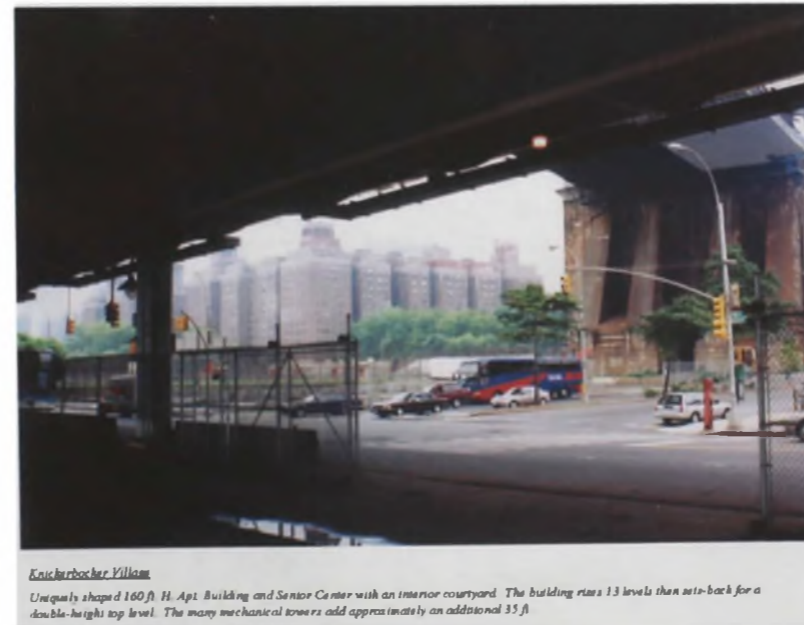
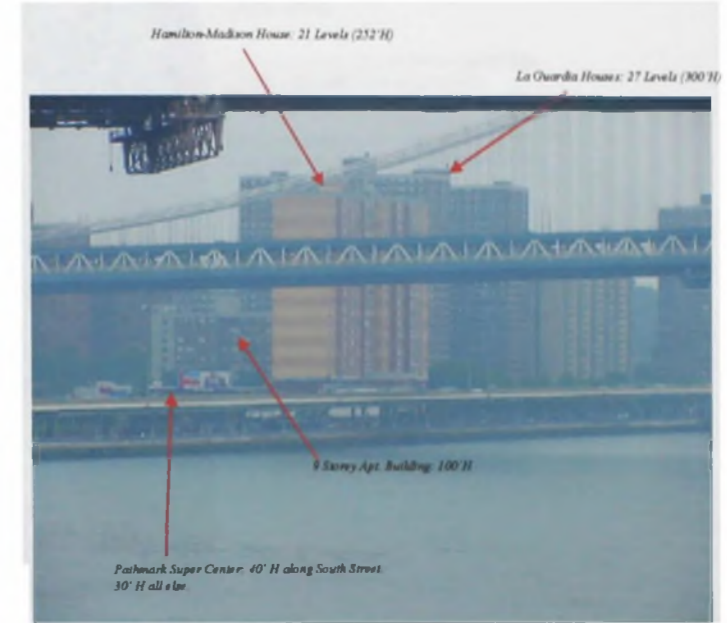
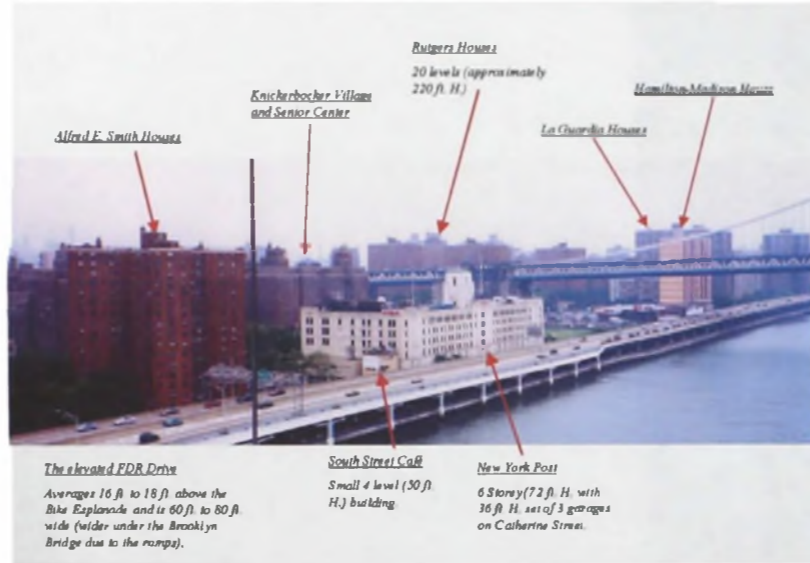
Adding a green/park zone will not only buffer noise from the highway, but also add an amenity that all New Yorkers enjoy-recreational space. The few plants and rocks at the beginning of the bikeway do not constitute a park atmosphere and the entire length of the esplanade should be a green zone.

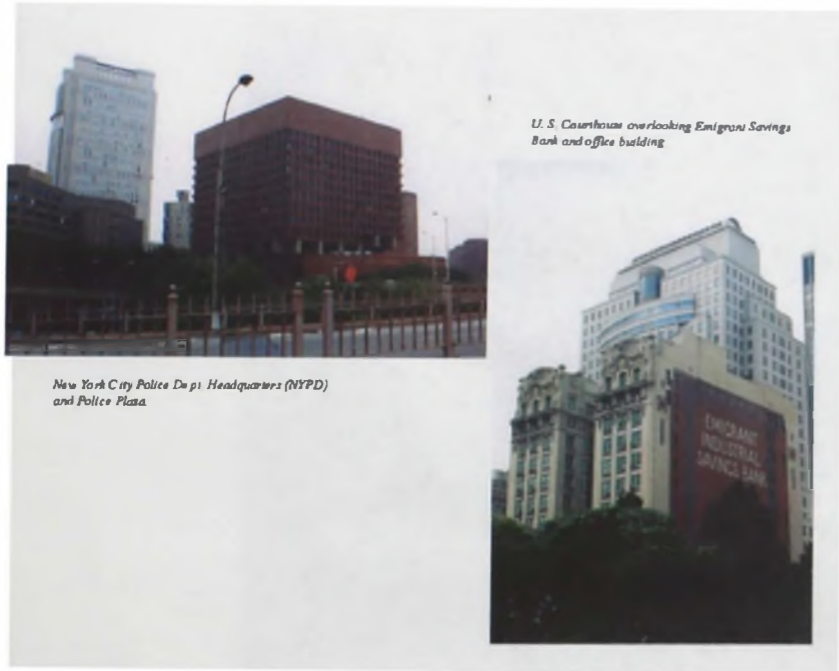




Appendix D

Site Analysis of Surrounding Structures

The Site is situated between the Brooklyn and Manhattan Bridges along South Street. Known locally as the "2 Bridges Area" of the Lower East Side this pocket of land that borders the site contains the Alfred E. Smith Houses, Smith Recreation Center/Playground and Baseball Field, Knickerbocker Village, New York Post, South Street Diner, and some smaller buildings. The Bell Atlantic skyscraper dominates and overlooks the site as it towers over the Smith Houses and M. Bergtraum High School. Pace University and the FultonMarket area border the Brooklyn Bridge's southern edge, while Hamilton-Madison House and the Rutgers Houses along with the Pathmark Super Center border the Manhattan Bridge's north side.





U.S. Courthouse overlooking Emigrant Savings Bank and office building

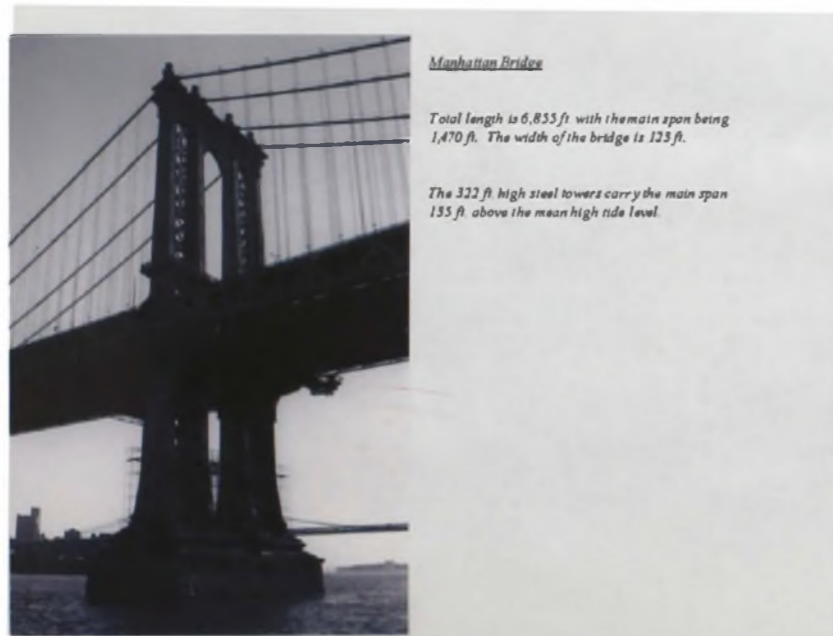
New York City Police Department Headquarters (NYPD) and Police Plaza



Brooklyn Bridge

Total length is 6,016 ft. with the main span being 1,595 ft. The width of the bridge is 85 ft.

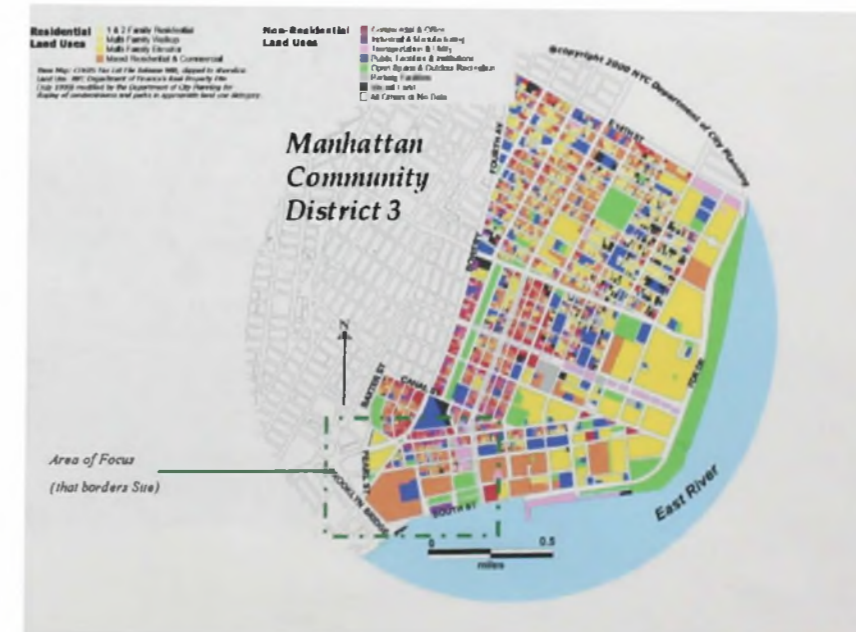
The Gothic granite towers rise to 276 ft. and hold the center span 135 ft. above the mean high tide level.



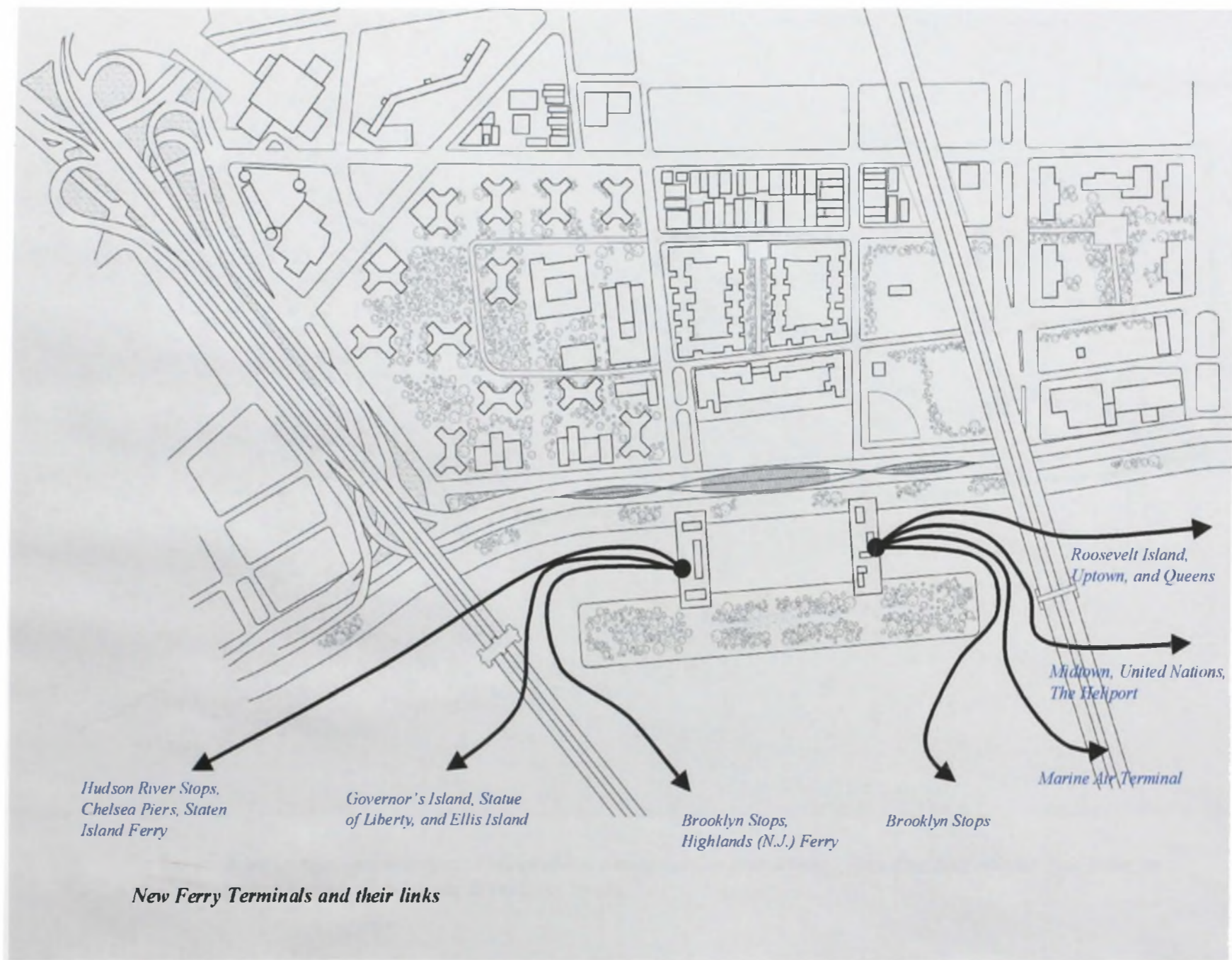
Manhattan Bridge

Total length is 6,855 ft with the main span being 1,470 ft. The width of the bridge is 123 ft.

The 322 ft high steel towers carry the main span 135 ft above the mean high tide level.



Proposed Ferry Routes



Connection Matrix

