

Inventory Coastal Zone Management Program
HD 266 .N5 W38 1981

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U. S. DEPARTMENT OF COMMERCE NOAA
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2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

WATERFRONT PLANNING PROJECT
TOWN OF WEST NEW YORK, N.J.

Hon. Anthony M. DeFino, Mayor

Through a grant from
N.J. Dept. of Environmental Protection
Division of Coastal Resources
Bureau of Coastal Planning & Development

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Community Housing & Planning Associates, Inc.
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MAPS

Base Map: WEST NEW YORK'S WATERFRONT showing property lines, block and lot numbers, ownership, area of property & narrative statement

WEST NEW YORK'S WATERFRONT SPECIAL AREAS

SOILS MAP OF WEST NEW YORK with attached mapping unit legend

FIA FLOOD HAZARD BOUNDARY MAP, TOWN OF WEST NEW YORK

CONCEPT 1/RECLAMATION OF WATER'S EDGE

CONCEPT 2/NO RECLAMATION OF WATER'S EDGE

SKETCHES OF STREET FURNITURE

BENCHES

KIOSKS

LIGHTING POLES

PAVING

SIGNS

TRASH RECEPTACLES

SUMMARY OF RECOMMENDATIONS

1. In West New York's waterfront there are 8 special areas, as defined in the DEP's COASTAL MANAGEMENT PROGRAM, which merit attention and special management policies. They are shellfish beds, filled water's edge, natural water's edge - flood plains, public open space, the Hudson River itself, classified as a "large" river; and the finfish migratory pathways and navigation channels in the River; and the steep slopes of the Palisades Cliffs; a 9th possible special area, "Historic and Archeological Resources", is presently being reviewed by the State's preservation agency and none have been identified at this time.
2. The Town's zoning requirements for the waterfront are compatible with the recommendations of this study to preserve a reasonable and usable amount of property, contiguous to the water, for public open space use. The recreation priority is acknowledged.
3. The following activities and uses of land, that are considered acceptable by the State's DEP, include: appropriate housing and transportation facilities, boat ramps, docks and piers for recreational use and fishing, dredging if done according to the controls and for the reasons permitted, and moorings; based on the coordinating Engineers' recommendations, 4 of the existing piers and a jetty are considered appropriate for rehabilitation and future public use. There is an accompanying need for revetment to replace existing damaged bulkheading.
4. Marinas are considered conditionally acceptable and are acknowledged in this study as a possible use of the part of the waterfront where the derelict piers are recommended for removal.
5. This report recommends a pedestrian walkway and a bikeway with specifications on right-of-way width and a landscaped separator strip.
6. The existing bulkheading is seriously deteriorated and will have to be replaced; stone revetment is recommended as the most economical and practical replacement.

7. Harbor clean up of derelict piers, vessels, and debris is the first step in the planned rehabilitation and development of West New York's waterfront.
8. Two design concepts were studied for the feasibility of obtaining 30% of the area for development for public open space use. The preferred Concept 1 Reclamation of Water's Edge uses dry land contiguous to the waterfront and 4 existing piers, #9, #11, #11A, & #13 and the jetty, suitable for rehabilitation for future public recreational use; they are on land under water.
9. The report contains prototype sketches for street furniture that would be appropriate for the public park land improvements.

INTRODUCTION: WEST NEW YORK'S WATERFRONT

West New York's Waterfront extends across the entire width of the Town, a distance of approximately 4,900 ft. along the Hudson River, from the Township of Weehawken (at 51st Street) at its southerly boundary to the Town of Guttenberg (at 68th Street) at its northerly boundary. As delineated in the boundaries of the Town's Controlled Waterfront Development Zoning District, the area generally called the "waterfront" extends at its northern boundary from the southern side of the Boulevard East right-of-way to its southern boundary, the pierhead line that extends a mean distance of 500 feet into the Hudson River.

According to the Town of West New York's Tax Assessor's records, that "waterfront" area defined above consists of 21 properties, comprising 187.45 acres of which 69.8 acres (or parts of 4 of the total 21 properties) are under water. Two of the lots are not part of the acreage: Lot 11X in Block 168 is air rights and Lot 15 in Block 168 is of an unknown location. The 117.6 acres of dry land are almost entirely owned by the Romulus Development Corporation. The 2 public properties, a Hudson County Park and a Town of West New York park comprise 15.68 acres. The former railroad's 101.9 acres is undeveloped although it is being used for purposes of outdoor storage, railroad siding, piers leased for mooring, and unofficially, as a dumping

ground. The most appropriate and best future use of the undeveloped property in conformance with the requirements and policies of the N.J. Department of Environmental Protection and the objectives and zoning controls of the Town of West New York is the primary focus of this study; it was undertaken to provide more detailed information on the area's natural and cultural characteristics and on the detailed requirements of the DEP and other public agencies that are empowered to regulate the use of waterfront property; the study's results will be used by the Town in evaluating development proposals that will appear before them and in preserving some waterfront land for future public use.

OWNERSHIP

As shown on the accompanying base map and the following table, more than half of the properties (15 of the total 21) and 85% of their total acreage are owned by Romulus Development Corporation. With the exception of the 5+ acre Prudential Inc. and the 6+ acre Diclemente properties, most of the rest of the land that is subject to development is now owned by Romulus Development Corporation. There are two properties in public ownership which comprise 13% of the area; they are the Hudson County Park (Lot 1 in Block 168, 4.2 acres) off the east side of Boulevard East from the Weehawken-

West New York boundary at 51st Street to 60th Street. Adjacent to that Park, is the 11.4 acre Town Park which also extends from 51st Street to 60th Street and contains the Town's Panorama Swim Club at the 60th Street end. The land for the Town Park was obtained with funds from HUD's Legacy of Parks (formerly Open Space) Program with some supplemental funding from the State's Green Acres Program which also provided funding assistance for the swimming pool improvement.

LAND USE

Public park use classifies the use of those Town and County park properties. The Prudential property (5.34 acres) at the Guttenberg boundary, a sand and gravel operation, is classified as a land use of industrial impact. The remaining "dry" lands are not developed as uses or buildings within the traditional land use and zoning categories, but are being used for railroad siding, trucking storage containers, moorings, temporarily and transitionally, in an unenclosed, outdoor state including sewer pipes, sand, and other storage. There is also some misuse in the unauthorized dumping of trash and debris, some temporary use of some piers that have been leased by the railroad and Diclemente. Those present uses of the property are marginal and transitional; most of West New York's waterfront is available for development.

IDENTIFICATION OF WATERFRONT PROPERTY IN WEST NEW YORK
OWNERSHIP & USE AS OF AUGUST 1981

BLK	LOT	OWNER	DRY / WATER /			TOTAL			LAND USE
			a	c	r	e	s		
168	1	Hudson County Park Comm.	4.24			4.24			Park
168	2A	Town of West New York	11.44			11.44			Park
168	2B	Romulus Development Corp.	13.78			13.78			Vacant
168	3A	"	2.49			2.49			Storage
168	3B	"	0.58			0.58			Storage
168	4A	"	1.04			1.04			Vacant
168	4B	"	1.23			1.23			Vacant
168	5	"	11.72			11.72			Vacant
168	6A	"	0.22			0.22			Vacant
168	6B	"	9.50			9.50			Vacant
168	7	"	45.00		18.00		63.00		Storage
168	8A	"							
168	8B	"	5.22		47.31		52.53		Storage
168	9	Tead Corp., Diclemante & Sons	3.04		3.05		6.09		Storage
168	10	Tead Corp., Diclemante & Sons	0.68				0.68		Storage
168	11	Penn Central R.R.	2.43				2.43		Vacant
168	11X	Tead Corp., Diclemante & Sons	0.98				0.98		(Air Rights)
168	12	Prudential Insurance Co.	3.83		1.51		5.34		Industrial
168	13	Penn Central R.R.	0.12				0.12		Vacant
168	14	Town of West New York	0.04				0.04		Vacant
168	15	Penn Central R.R.							
			------(Location Unknown)-----						
TOTAL			117.58		69.87		187.45		
Less County & Town Parks			15.68				15.68		
TOTAL Privately Owned			101.90		69.87		171.77		

Source: Tax Assessor, Town of West New York

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EXISTING NATURAL FEATURES

The Palisades

The western boundary of the delineated waterfront area in West New York consists of the Palisades Cliff formation which is a unique natural feature that warrants concern over its preservation and the prevention of misuse, comparable to that of the waterfront. There has been some concern over poor siting of bulky high rise apartment structures that have been built on the cliff top and cutting into the cliff face for such buildings and their accessory parking garages; this has happened more frequently in neighboring municipalities than it has in West New York. Part of the reason lies in West New York's purchase of approximately 11 acres of Palisades property, contiguous to the Hudson County Park, for public use as a park; this is to be retained, for the most part, in its natural state and used for walkways, hiking paths, and as an overlook of the Hudson River. In addition, the horizontal cliff face in its natural planted state also serves as a physical separator between the built-up, urbanized, high density community and the open, developable waterfront area that lies at a much lower elevation between the foot of the cliff and the Hudson River. When West New York's Controlled Waterfront Development zoning was formulated, there was concern over retaining the natural beauty of the Palisades as well as not obscuring the view of the Hudson River.

SOILS

The accompanying Soil Map of West New York, prepared by the U.S. Department of Agriculture's Soil Conservation Service, shows most of the waterfront land in the "Ur", urban land classification. The mapping unit is on the foot slopes of the Palisades formation. The underlying material consists of colluvial deposits from the uplands and areas of tidal marsh. Closer to Boulevard East the classifications are "Brc - Booton Very Rocky Soils" (8 to 15% slopes); "BrD - Booton Very Rocky Soils" (15 to 25% slopes) and "BrF - Booton Very Rocky Soils" (very steep with a high proportion of exposed diabase rock - outcrops facing the Hudson River). These describe the Palisades which separate built-up West New York (generally north of Boulevard East) from the vacant Hudson River Waterfront.

There are 9 "Special Areas", defined by the DEP, which require attention and special management policies in West New York; they are discussed in the following section.

SPECIAL AREAS

"Special Areas" comprise those 44 types of coastal areas, defined in DEP's RULES ON COASTAL RESOURCE AND DEVELOPMENT POLICIES (NJAC 7:7E-1.1 et. seq.) "which merit focused attention and special management policies." In the case of the West New York Waterfront, some of the needed management mechanisms could also be integrated into the Town's existing Controlled Waterfront Development Zoning law. The following 9 special areas are found in West New York's Waterfront (Note: The State's policies and their rationales are excerpted from the above noted rules).

1. Shellfish Beds are defined as "estuarine bay or river bottoms (tidelands) that are productive for hard ... and soft ... clams, eastern oysters, bay scallops, or blue mussels. A productive bed is one ... of natural recruitment for one or more of these species, or is leased by the State for shellfish culture, or is a State Shellfish Management Area"

The State's policy is to prohibit any development that would destroy productive shellfish beds. Destruction includes "actions of filling to create 'fast land', overboard dumping of solids or spoils which would smother present shellfish populations or create unsuitable conditions for shellfish

colonization or the creation of bottom depressions with anoxic water conditions. Development within shellfish beds is conditionally acceptable if of natural interest and no prudent and feasible alternative sites exist"

Any coastal development which "would result in contamination or condemnation of shellfish beds is prohibited; development that would significantly alter the salinity regime, substrate characteristics, natural water circulation pattern or natural functioning of the shellfish beds is prohibited"

Water dependent development which requires dredging is discouraged and must be managed not to cause significant mortality to the shellfish.

The rationale for those policies is to protect and maintain the shellfish industry which provides employment and retail value in high numbers as well as sources for the recreational clammers and shellfishermen. Shellfish also play an important role in the ecology of the estuary.

In West New York's Waterfront the area is closed to shell fishing and no leases are being issued although there likely are present oysters and soft clams. The mean salinity is 13 PPT.

2. Filled Water's Edge is defined in the Program as "either existing filled areas lying between Wetlands or Wet Areas and either (1) the upland limit of fill or (2) the first public road or railroad landward of the adjacent Water Area, whichever is closer to the water. Some existing or former dredge spoil and excavation fill areas are Filled Water's Edge Area.

The State's policies are that water dependent uses of land are acceptable in the Filled Water's Edge, and non-water dependent development is conditionally acceptable provided that it would not preempt water dependent uses of land and would not prevent public access along the water's edge.

In the West New York Waterfront District, the assumption is that there is fill in the area south of the railroad siding. (Lot 5 in Bl. 168) and Hillside Road. At this time the extent and characteristics of fill is not known without borings. A search for available information from borings that may have been made for known previous development studies is in progress; from "library studies", there does not appear to be any available information other than early data gathered for adjoining municipalities at the time of the construction of the Lincoln Tunnel, which has no land in West New York.

3. Natural Water's Edge - Floodplains is defined in the Policies publication as "the Flood Hazard Areas around rivers, creeks, streams as delineated by DEP under the Flood Hazard Area Control Act (NJSA 58:16A-50) or by the Federal Emergency Management Agency (FEMA)... Floodplains include the areas subject to both tidal and fluvial flooding. Where Flood Hazard Areas have been delineated by DEP and FEMA, the DEP delineations shall be used. Where Flood Hazard Areas have been delineated by neither DEP nor FEMA, the 10 ft. contour line shall be used as the inland boundary of the Floodplain..."

The State's policies are that "development is prohibited in the Natural Water's Edge Floodplains within 100 ft. of a navigable water body unless the use is water dependent.

Development elsewhere in the Natural Water's Edge Floodplains is discouraged unless it has no feasible alternate site and it would not preempt use of the waterfront portion of the Floodplains for potential water dependent activities. Development must be consistent with all other coastal policies, in particular, the performance standards found in the Flood Hazard Area Resource Policy. Detention basins are prohibited in river floodplains.

The rationale for those State policies is to reduce losses of life and property from inappropriate development of the floodplains, and to allow uses that are compatible with periodic flooding or those that require a Water's Edge location.

The Federal Emergency Management Agency (FEMA) has classified West New York's boundary as in an emergency phase of the program; no elevation has been set; therefore the 10 ft. contour use is applicable. It should be noted that Natural Water's Edge Floodplain policies are not applicable to this site since it is subject to Filled Water' Edge Policies according to the FEMA's New York District Office.

4. Historic and Archeological Resources are defined in the Program as "objects, structures, neighborhoods, districts, and man-made or man-modified features of the landscape, including archeological sites which either are on or are eligible for inclusion on the State Register of Historic Places ... according to the criteria for eligibility defined in N.J.A.C. 7:4-4.2."

The State's policies are that development that: "detracts from, encroaches upon, damages or destroys the value of Historic and Archeological resources is discouraged and that development that incorporates Historic and Archeological resources in adaptive

reuse is encouraged. Scientific recording and/or removal of Historic and Archeological resources or other mitigation measures must take place if the proposed development would irreversibly and/or adversely affect Historic and Archeological resources. New development in undeveloped areas near Historic and Archeological resources is conditionally acceptable provided that the design ... is comptable with the appearance of the Historic or Archeological Resource. The rationale is that the public interest requires their preservation for present and future generations' education and enjoyment."

In the West New York Waterfront there are no known historic resources; the question of archeological resources is presently being reviewed by the State's preservation agency and, if any are found, will be identified in this report and in the Town's Zoning Ordinance.

5. Public Open Space is defined as "land areas owned and maintained by State, Federal, County or Town agencies or non-profit private groups (such as conservation organizations and homeowners' associations) and dedicated to conservation of natural resources, public recreation or wildlife protection or management. Public open space includes State Forests, Parks and Fish and Wildlife

Management Areas and designated Natural Areas (N.J.S.A. 13:1B-15.12a et. seq.) within DEP-owned and managed lands"

The State's policies are to encourage new public/private open space development at locations that would be appropriate for the adjoining land uses; to discourage development that adversely affects existing public open space; to allow, conditionally, development within public open space that is appropriate and compatible with that public open space.

The rationale is that open space is needed to maintain a desirable living environment. The supply of open space has been decreasing under the pressures of development while the State's population has been increasing and, accordingly, requiring more public open space.

The Town of West New York has recognized the need for more open space; planning studies to update the Town's master plan indicated a need for an additional 99 acres of recreation space according to National standards. This need has been reduced somewhat by the Town's acquisition of 11.4 acres of land in the Waterfront from the Penn Central Railroad with funding assistance from HUD's Legacy of Parks Program and the State's Green Acres Program. That land abuts, on the southern boundary, the existing

Hudson County Park (4.2 acres) located south of Boulevard East (Block 168 Lot 1). The additional 11.4 acres served from Lot 2 in Block 168 served to enlarge the limited park space that was available from that 4.2 acre parcel. A large part of the 11.4 acre property includes the Palisades Cliffs which were acquired to protect them as natural public open space and to preclude their development; on the eastern end of that 11.4 acre parkland, with access from 60th Street, the Town has constructed a public swimming pool/park facility that was partially funded under the State's Green Acres Program.

The Town of West New York's policies on public open space are concerned with the needs of future population. When West New York was rezoned in 1979, the district created for the waterfront was a PUD-like zone, the Controlled Waterfront Development District, which requires that 30% of any property submitted for development must be set aside for public recreational use, and, further, that such land shall be contiguous to the river and usable (i.e. not under water) Furthermore the Town is studying the feasibility of acquiring additional land in the waterfront area for public recreational use under combined funding from the Green Acres and Community Development Programs.

One function of this study is to provide design alternatives for the required 30% public open space that will be used by the Town during their review and negotiations periods for site plan approval of plans for the waterfront.

6. Large Rivers are defined as "flowing waterways with watersheds greater than 1,000 square miles"; this includes the Hudson River, which is defined as a tidal river from the New York State line to its mouth at Upper New York Bay at the Morris Canal in Jersey City.

The State's policies for larger rivers include the conditional acceptability of the following uses: aquaculture, boat ramps, cargo and recreation docks, new and maintenance dredging, piling, mooring, sand and gravel extraction, bridges, submerged infrastructure, overhead lines, outfalls and intakes. Spoil disposal and dumping are prohibited. Filling, dams and impoundments and realignment are discouraged.

The rationale for the State's policies is that large rivers are the main freshwater input to the open bays and the critical functions performed by those bays depend on maintenance or improvement of water quality and flow patterns in tidal rivers. Extensive portions are presently overstressed with sewage and

industrial wastes. Control is obtained by judiciously permitting non-deleterious uses and economic functions and prohibiting the obviously negative ones.

As shown in the land use section of this report, the West New York Waterfront contains docks, piling, mooring; and from the Engineer's review of existing conditions, a sewer outfall was identified in the berthing area between Piers #13 and #16. The advisability of dredging and filling in this particular location, in conjunction with the waterfront's open space zoning requirements, is discussed in the latter part of this report which contains the findings and recommendations of the engineering consultants.

7. Finfish Migratory Pathways are defined as waterways which can serve as passageways for diadromous fish to or from seasonal spawning areas and include portions of the Hudson River within the coastal zone boundary.

The State's policy is to prohibit development (such as dams, dikes, spillways, and intake pipes) which create physical barriers to the movement of fish along finfish migratory pathways unless mitigating measures such as fish ladders, erosion control oxygenation are used to remedy problems from developments that lower dissolved oxygen levels, release toxic chemicals, raise

ambient water temperature, impinge or suffocate fish, cause siltation or raise turbidity levels during migration periods.

The rationale for those policies is to protect the Striped Bass, American Shad and herrings that are fished as sport and commercial activities in the State.

In West New York, the waterfront is considered a migratory pathway for Atlantic Tom Cod, Striped Bass, perch, catfish, eels, shad, Blue Back Herring, Short Nosed Sturgeon, and Atlantic Sturgeon. Therefore, any projected development activities and the controls for such development should acknowledge the existing migratory pathways and the State's Policies.

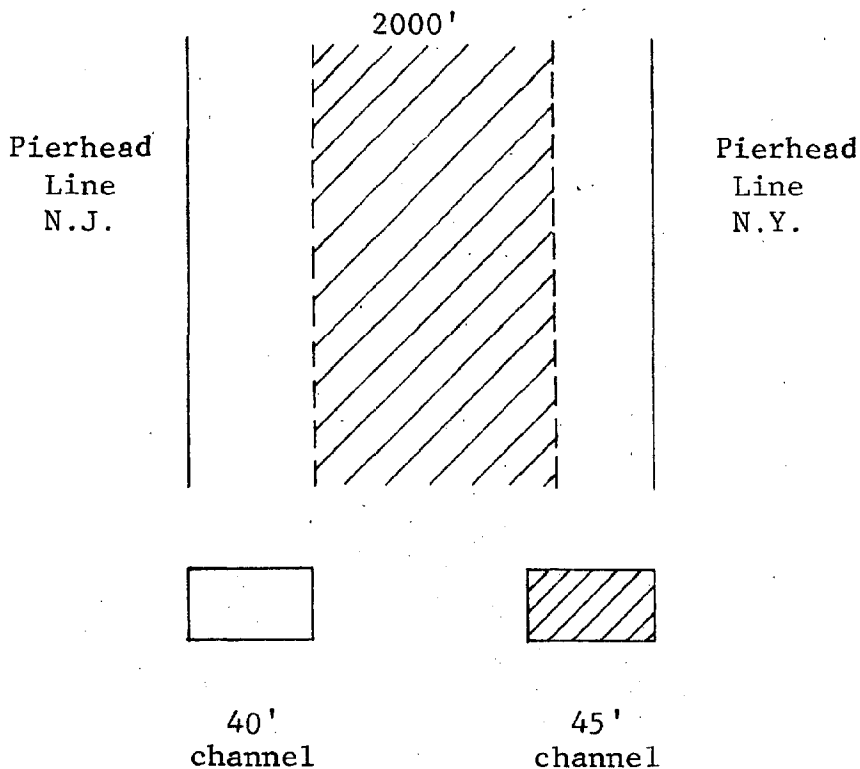
8. Navigation Channels are defined in the Program "as water areas in tidal rivers and bays presently maintained by DEP or the Army Corps of Engineers and marked by the U.S. Coast Guard with buoys or stakes. Navigation channels also include channels marked with buoys, dolphins and stakes and maintained by the State of New Jersey, and access channels and anchorages. Navigation channels are approximately parallel to the river bed."

The State's policy is to permit new or maintenance dredging of existing navigation channels, conditionally, if the maintenance

policy is met. Development which would cause terrestrial soil and shoreline erosion and siltation in navigation channels shall utilize appropriate mitigation measures; development that would cause loss of navigability is prohibited.

The rationale for those State policies is to maintain full use of navigation channels for commercial and recreational surface water transportation; channels also play an important ecological role in providing estuarine circulation and flushing routes and migration pathways and feeding habitats for a wide number of finfish, shellfish and waterfowl.

In West New York the navigation channel runs from the pier-head line, shown on the accompanying base map, to the pierhead line in Manhattan, New York, across the River. A 40 ft. depth is authorized. The center of the River, for a distance of 2,000 ft. as shown in the following sketch, is authorized to a 45 ft. depth by the N.Y. District of the U.S. Army Corps of Engineers.



(N.Y. Dist. C.E. Navigation Div.)

9. Steep Slopes are defined in the POLICIES publication "as slopes greater than 15% which are not coastal bluffs"

The State's policy is to prohibit development on steep slopes greater than 15% unless the regrading of a very small part of a site (less than 5%) is essential to the overall landscaping plan for the site; in which case the grading shall be to less than a 10% slope. Man-made steep slopes above the slope at which the sediments normally stabilize (the angle of repose)

shall either be regraded to a slope at least 20% below the angle of repose or stabilized and planted with native woody vegetation.

The rationale for the State's policies is to preserve steep slopes in order to control soil erosion, protect up-slope lands, minimize pollution of service waters, reduce flooding, maintain water flow in headwaters, etc., when vegetation is stripped this results in increased surface runoff and downstream flooding. When such silty water enters a surface water body, the increased turbidity and sedimentation, which usually follow, can cause reduction of productivity and flood water storage capacity. When erosion occurs and topsoil is lost, there is also a negative impact on the esthetic element of the environment.

In West New York at the western boundary of the Controlled Waterfront Development zone, there are the Palisades Cliffs which have slopes of 15% or more. As shown on the accompanying SOILS MAP OF WEST NEW YORK which was prepared by the Soils Conservation Service of the U.S. Department of Agriculture, the Brf, Booton Very Rocky Soils (very steep); BrD, Booton Very Rocky Soils (15-25% slopes); and BrC, Booston Very Rocky Soils (8-15% slopes) comprise the Palisades part of the Waterfront

district. In recognition of the need to protect those "steep slopes", i.e. Palisades Cliffs, the Town acquired approximately 11.4 acres described in preceding paragraph 5. Public Open Space. With the exception of a small comparatively flat portion of that parkland at 60th Street that has been developed as a public swimming pool, the remainder of that property is to remain in its natural state as a park providing an "overlook", hiking trails and similar recreation facilities without any type of development that might alter the slope or upset its natural balance.

RELATIONSHIP BETWEEN THE TOWN'S ZONING & THIS STUDY

In January, 1979 the Town of West New York adopted a comprehensive new zoning ordinance which includes a special district for its waterfront, the Controlled Waterfront Development District. The framework of the CWD Zone is similar to that of Planned Unit Development - PUD type of zoning in that it applies to large tract(s) of vacant land in single ownership (with one exception). The CWD Zone permits combined residential, commercial, industrial land uses of compatible impact and proportions according to a detailed comprehensive site plan that is subject to public hearing and requires approval by the Town rather than traditional individual zones for residential, commercial and industrial districts each with its own statistical controls on setbacks, coverage, etc. The CWD does, however, include specific numerical controls on those elements of waterfront development that require stringent controls, e.g., residential densities, building height, and especially the following mandatory requirement that "there shall be provided at least 30% of the gross area ... for public park and other recreational or open space use, in such dimensions and locations as to be utilized to the maximum extent for active and passive recreation facilities. Said open space lands shall consist of property contiguous to the Hudson River but shall not include lots under water in achieving the required 30%."

This open space requirement was the Town's first step in actively preserving waterfront open space for public use. It conforms to policy recommendations by the Regional Plan Association in the late 1960's and more recent efforts by the Department of Environmental Protection.

The anticipated relationship between this study and the Town's waterfront zoning is that the study's results may provide more specific detailed information for inclusion in the written zoning controls and for the zoning map. For example, the "Special Areas" in the preceding section may be identified on the zoning map and the text of the CWD district may be enlarged to permit or restrict certain uses of land or activities. The DEP acceptability conditions for uses, in the following section, similarly provide detailed information that could enable appropriate land uses under controlled conditions. The design concepts for the required open space, which is also part of the study's work products, could be included in the Community Facilities element of a Town Master Plan. This part of the work will also better equip the Town in its communication and negotiations with developers of waterfront property to ultimately achieve the most usable, accessible and attractive public recreational lands from the 30% requirement of the CWD zoning requirement. This study

also includes the feasibility of filling land under water, dredging, and the feasibility of the continued use or reuse of the existing piers of various sizes and condition. Upon completion, this study will provide the means, in combination with its Zoning Ordinance, for the Town of West New York, to evaluate, encourage and approve more innovative designs for development as well as a sound basis for the preservation of the Town's waterfront property.

ACCEPTABILITY CONDITIONS FOR USES

The following section of the report covers uses of waterfront land that are considered acceptable by the State's Department of Environmental Protection and the conditions under which some land uses or waterfront activities, such as dredging, would be considered acceptable, as set forth in their publication, COASTAL RESOURCE AND DEVELOPMENT POLICIES. For the sake of accuracy and clarity the definitions and controls are almost verbatim. This part of the report is provided for the purpose of informing the Town of West New York of these conditions and also to evaluate each as to the advisability of incorporating it as part of the Town's Zoning Ordinance instead of all, collectively, by reference, to the DEP's requirements. They include the following:

1. Boat Ramps are to launch a boat into the water until the water's depth is sufficient to allow the boat to float. Generally ramps are paved with asphalt, concrete or covered with metal grates. Any applicants to build must demonstrate the need and that they will cause minimal practicable disturbance to intertidal flats or subaqueous vegetation. Ramps must be constructed of environmentally acceptable materials, e.g. concrete, oyster shell; garbage cans shall be provided near boat ramps. Public ramps have priority over restricted use/private ramps.

2. Docks and Piers (for cargo movement) are structures supported on pilings driven into the bottom substrate or floating on the water surface, used for loading and unloading cargo (including fluids, connected to or associated with an industrial facility). Docks and piers are considered acceptable if they do not pose a hazard to navigation and associated uses of adjacent land meet all Coastal Resource and Development Policies.
3. Docks and Piers (recreational & fishing) are structures that are supported on pilings driven into the bottom substrate or floating on the water surface; they are used for recreation or fishing or for the mooring of boats for recreation and fishing, including commercial fishing. Docks and piers are considered acceptable provided that a) there is a demonstrated need that cannot be satisfied by any other existing facilities; b) the associated upland use satisfies the location policies for water's edge areas; c) the construction minimizes adverse environmental impact to the extent feasible; d) the docks and piers are located so as to not hinder navigation or conflict with overhead transmission lines; and e) there is a minimum feasible interruption of natural water flow patterns.

Docks and piers on pilings shall be preferred to construction on fill. Repairs and maintenance of existing piers generally are acceptable.

4. Dredging-Maintenance is the removal of accumulated sediment from authorized and currently maintained navigation channels, marinas or boat moorings for the purpose of maintaining an authorized water depth and width. This type of dredging is considered acceptable if done to the authorized depth and width in all existing navigation channels, access channels, anchorages, and moorings within all General Water Areas to ensure that adequate water depth is available for safe navigation and provided that an acceptable spoil disposal site exists and turbidity is controlled, using the best available technology.
5. New Dredging is the removal of sediment from the bottom of a body of water, that has not been previously dredged or excavated, for the purpose of increasing water depth or the widening or deepening of navigable channels to a newly authorized depth or width. New dredging is considered acceptable if it is for boat moorings, navigation channels or anchorages (docks) and provided that: a) there is a demonstrated need that cannot be satisfied by existing facilities; b) the facilities served by the new dredging satisfy the location requirements for Special Waters Edge Areas; c) the adjacent waters edge areas are currently used for boating, commercial fishing or shipping; d) the dredged area causes no significant disturbance to Special Waters Edge

Areas; e) adverse environmental impacts are minimized; f) dredging will have no adverse impacts on groundwater resources; g) an acceptable dredge spoil disposal site exists; h) the disturbed area is reduced to the minimum practical; and i) turbidity is controlled during dredging using the best available technology.

6. Dredge Spoil Disposal is the discharge of sediments (spoils) removal during dredging operations. This is considered acceptable when shallow waters preclude removal of the dredge spoil from the area, and on a case-by-case basis with testing if necessary.
7. Filling is the deposition of inorganic material (sand, soil, earth, dredge spoils, etc.) into water areas for the purpose of raising water bottom elevations to create land areas. Filling is considered acceptable under the following conditions: a) all other water areas, filling is discouraged but limited filling is acceptable provided that: the use requiring the fill is water dependent; there is a demonstrated need that cannot be satisfied by existing facilities; there is no feasible or practical alternative site on an existing Water's Edge; the minimum practical area is filled; adverse environmental impacts are minimized; the minimal feasible interference is caused to Special Edge Areas; and pilings and

columnar support or floating structures are not used; b) it is prohibited in lakes, ponds, reservoirs and open bay areas in depths greater than 18 ft.; c) filling to create docks and wharves is conditionally acceptable provided that the construction of the dock or wharf on pilings "would be infeasible"; d) filling with clean sediment of suitable particle size and composition if acceptable for beach nourishment projects and conditionally acceptable for the creation of new wetland.

8. Piling is the insertion of columnar structural members into the water bottom substrate. Piling is considered acceptable when pilings are an element of docks and moorings; they must meet the acceptability conditions for those uses. The placement of pilings is conditionally acceptable provided they are not a hazard to navigation.
9. Moorings are temporary or permanent piling or floating anchored facility in a body of water for the purpose of attaching a boat. Mooring is considered acceptable, conditionally, in all General Water Areas provided that the mooring area is adequately marked and is not a hazard to navigation.

HOUSING USE POLICIES

Housing, as defined in the COASTAL RESOURCES publication, includes both large and small development of single family, detached, multi-family apartments or townhouses, high rise and developments of mixed housing types.

Water Area & Water's Edge Housing: new housing development is prohibited in Water Areas outside Special Urban Areas except for reconstruction of existing residential structures on pilings located on guts, canals, lagoons and ports which have been damaged by causes other than wind, water or wave, which is conditionally acceptable. West New York is a Special Urban Area where new housing development is acceptable in water areas on existing pilings provided public access and the water body is not restricted.

In Special Urban Areas, housing in Filled Water's Edge areas, is acceptable provided public access requirements (7:7E-8.13) are complied with and Special Areas are adequately protected.

Housing and Transportation: The need to plan for transportation facilities in conjunction with housing development is stressed in the COASTAL RESOURCE AND DEVELOPMENT POLICES publication; the policies are summarized below:

1. Development of housing at locations and densities that contribute to the feasibility of public transportation is encouraged.
2. Residential developments are encouraged to include bicycle paths and storage facilities.
3. Residential developments are encouraged to provide pedestrian amenities which include lighted walkways with benches, lighted sidewalks with curb ramps and intersections, shade trees and pedestrian controlled traffic lights.

Resort/Recreation Use Policies include motels, marinas, boating facilities, camp grounds, amusement piers, parks and recreational structures such as bath houses, natural areas, open space for active and passive recreation, linear paths for bicycling and jogging. In West New York the 60th Street Park contains swimming pool facilities, natural areas for walking, sitting areas and other passive recreation activities.

Recreation Priority: Each waterfront municipality should contain at least one waterfront park on each body of water within the municipality. Municipalities or private developments that will not provide access to water will not be eligible for Green Acres or Shore Protection Funding.

In West New York, the provision of public access to the water, in any development plan, is assured through the Controlled Waterfront Development's zoning requirement that 30% of any site for development must be allocated for public recreation use, must be dry, usable land contiguous to the water. Further, the Town has pledged its cooperation to the DEP in the feasibility study of a pedestrian walkway, the full length of the Hudson River, which is being undertaken.

Recreation Areas Within Development are promoted in the following State policy: "recreation areas shall be incorporated in the design of all residential, industrial and commercial development, to the maximum extent practicable."

As noted in the preceding paragraph, the Town's CWD Zoning Control requires 30% open space for recreational use as part of any design for a site which may include residential, industrial and commercial development.

Marinas are conditionally acceptable in the COASTAL ... DEVELOPMENT POLICIES provided that there is a demonstrated regional demand for recreational boating that cannot be met by upgrading and expansion, and that the proposed marinas will include the development of an appropriate mix of dry storage areas, public launching facilities, and berthing spaces, and that the proposed marina will provide adequate pump out stations for waste water disposal from boats in a manner that is acceptable to Federal and State water quality laws and regulations.

New marinas or launching facilities that provide primarily for sail and oar boating are encouraged. The expansions of existing marinas shall be encouraged by limiting non-water dependent land uses that preclude support facilities for boating. Publicly funded marinas shall be designed to be part of multi-use parks. Recreational boating facilities are acceptable provided they are so designed and located as to cause minimum interference with the commercial boating industry.

Amusement Piers, Parks and Boardwalks: New amusement piers are prohibited except in areas with privately held riparian grants where they are discouraged. Expanded or extended amusement piers, parks and boardwalks at the water's edge or in the water and the on-site improvement or repair of existing amusement piers, parks

and boardwalk areas are discouraged unless the following conditions are met:

1. These do not unreasonably conflict with the esthetic values, views, etc.
2. Public access to the shorefront is not limited.
3. The surrounding community can handle the action generated by these developments.

TRANSPORTATION USE POLICIES

Roads: New roads are limited to where the need exists and there is a provision to include the construction of bicycle and foot paths except where infeasible. Provision must be made for the coordination of public transportation right-of-way and facilities such as bus and rail lines, related transit stop or station facilities and parking; where adjoining land use does not lose its recreational and esthetic opportunity; and where no conflicts between coastal policies and induced development would be expected.

The N.J. Department of Transportation has a proposed access road, called the Hudson River Route, in its study stage, which is needed to "open-up" or to provide safe access to the waterfront in West New York and linkages to adjoining municipalities; without such

access, comprehensive development of that area could not take place due to its limited access from Hillside Road and the waterfront's considerably lower elevation than the rest of built-up West New York. The first alignment, which the DOT presented at public hearings, was through the center, which is flat and the most buildable part of the waterfront. There were objections to using that alignment for those reasons. The majority of persons who evaluated the DOT's proposal felt that the alignment should either be moved northerly to the base of the Plaisades Cliffs or easterly at the water's edge as a sort of Hudson River Drive, thus leaving the most buildable part of that property free for a maximization of use. The engineering consultants to the DOT are currently preparing studies of alternate alignments, one of which is at the base of the Palisades along elevation 10 ft. The area presently contains unimproved and unofficial roadways, wide enough for one vehicle, close to the water's edge and piers.

Public Transportation including bus, rail, air, boat and related parking are encouraged.

Bicycle and Foot Paths are encouraged by the State's policy to require the construction of internal bicycle paths, foot paths and sidewalks in all developments to the maximum extent. In addition, linear bicycle and foot paths are encouraged along the edges of all water bodies provided they do not disturb; existing bike and foot

paths must be continued around development when it is impractical to pass through.

Parking Facilities are conditionally acceptable provided they will not interfere with mass transit, and the development satisfies DEP's policies for air, water and runoff, and the parking development is a compatible land use with adjoining development.

Public Facility Use Policies are to allow, conditionally, new or expanded facilities for the production, transfer, transmission and recovery of water, sewerage and other utilities; the rationale for this policy is that available and adequate infra-structure makes future development easier and more expeditious and should also address the needs caused by present development. Although public facilities are needed, it is recognized that they can exert a negative impact on the coastal environment and economy if improperly designed, constructed and poorly located.

Dredge Spoil Disposal On Land is defined as "the discharge or of sediments, known as spoils, removed during dredging operations". The spoil disposal is acceptable when:

1. The sediments are covered with appropriate clean material similar in texture to surrounding soils;

2. The sediments will not pollute the ground water table by seepage, degrade surface water quality, present an objectionable odor or degrade the landscape; and
3. The effects from the transfer of dredged material to the disposal site is minimized.

PUBLIC ACCESS TO THE SHOREFRONT

Public access to the shorefront is defined in COASTAL ... POLICIES as "the ability of all members of the community to pass physically and visually along the ocean shore and other waterfronts". The State's policy is that: "all development adjacent to water shall provide a linear waterfront strip accessible to the public" in an unbroken line or, linked around obstacles for connection to other parts. The DEP's policy is strengthened by its funding eligibility requirement that municipalities (or private development) that do not provide access to the water will not be eligible for Green Acres or Shore Protection Bond funding.

BUFFERS AND COMPATIBILITY OF USES

As defined in the COASTAL POLICIES, buffers are natural or man-made areas, objects, structures that are used to separate district uses or areas. Compatibility of uses is the ability for uses to exist

together without esthetic or functional conflicts. DEP policy is that development of waterfront land should be compatible with adjacent land uses and water types. Where a proposed development would not be compatible and might adversely affect adjacent areas, particularly special areas discussed here, then appropriate buffers should be provided.

NEIGHBORHOODS AND SPECIAL COMMUNITIES

Neighborhoods and other discrete and special communities should be protected; coastal development that protects and enhances "the physical coherence" in those neighborhoods and special communities is encouraged by State policy. Development that would adversely affect neighborhoods or special communities is discouraged.

FLOOD HAZARD AREAS

Flood hazard areas around rivers, creeks and streams are being delineated by DEP under the Flood Hazard Area Control Act (N.J.S.A. 58:16A-50 et.seq.) to identify those locations ... where the improper development and use would constitute a threat to the safety, health and general welfare from flooding. Where DEP and Federal Emergency Management Agency have defined limitations, the DEP delineations shall be used.

The Federal Insurance Administration of the Department of Housing and Urban Development has prepared a FIA FLOOD HAZARD BOUNDARY MAP (No. H 02, dated May 31, 1974) which marks the entire West New York Waterfront to within 400 and 500 ft. south of Boulevard East, and east of 60th Street, up to Hillside Road as a "Special Flood Hazard Area".

Floodway is defined as "the channel of natural stream and portions of the flood hazard area adjoining the channel which are reasonably required to carry and discharge the flood water for flood flow of any natural stream. (N.J.S.A. 58:16A-51 et.seq.). Floodways are being delineated by DEP.

RIPARIAN LANDS (TIDELANDS)

The base map for this study of the Town of West New York's Waterfront contains the Riparian Rights as taken from information provided on the maps, "Riparian Lands and Conveyances" as that was obtained from the Bureau of Tidelands. Generally the extent of the granted rights ranges from 850 ft. from the "High Water Line of Grants" on lot 7 in Block 168 at the Weehawken boundary to 1080 ft. on lot 12 in Block 167 at the Guttenberg boundary; for the following three properties in West New York:

Lot 7, Block 168: 850 ft. from the High Water Line of Grant (at Pier 5); 840 ft.(at Pier 7); 790 ft.(at Pier 8)

Lot 8, Block 168: 641 ft.

Lot 9, Block 167: 691 ft.

Tidelands Management

In New Jersey "tide-flowed" or riparian lands are owned by the State unless they have been conveyed. These are defined as "lands now or formerly flowed by the mean high tide, including filled land. The State owns the land as trustees for the public and must administer their use in the public interest. The State exercises control over tidelands in two ways: through its proprietary role as owner, and through its regulatory role under the Waterfront Development Law".

The State's ownership interest extends to the mean high water mark which is based on a theoretical 18.6 year tide, and it is exercised

through the Tidelands Resource Council (12 citizens appointed by the Governor) which decides on the grant, lease or license for uses of State-owned tidelands. At present the State licenses the use of the lands rather than grant them. The Department of Environmental Protection's Commissioner has veto power over any action by the Tidelands Resources Council.

Under riparian law, the owners of land immediately upland have the first right to purchase or use tidelands, and the use of the tidelands requires a Waterfront Development Permit to ensure that it will conform with State policies.

CONCEPTUAL PLANS TO IMPLEMENT 30% OPEN SPACE REQUIREMENT

A number of conceptual plans were made to explore the various methods to implement the Town of West New York's Controlled Waterfront Zoning District's requirement that 30% of the gross area of waterfront property shall be for "public park and other recreational or open space use, in such dimensions and locations as to be utilized to the maximum extent for active and passive recreation facilities. Said open space lands shall consist of property contiguous to the Hudson River but shall not include lots under water in achieving the required 30%." The need to explore such concepts and implementation techniques lies in the Town's interest in maximizing the development "potential" of the waterfront, which is the only remaining vacant property in West New York of a size to enable significant development; there is also the same interest in maximizing the acquisition of as much public park land as possible and in the best utilization of the land that will be acquired. Based on National recreation space standards for a municipality of its population, West New York presently has a deficiency in recreation land of more than 80 acres, and the only part of West New York containing such vacant acreage is the waterfront.

The concepts that were explored were: the use of dry land only, i.e., not to include lots that are partially submerged under water

or the piers and jetty; the use of dry and wet land, i.e. to include those waterfront properties that are partially under water and the selective re-use of some piers and bulkheading in combination with some shoreline improvements as recommended by Flaherty Giavara Associates, the collaborating engineering firm in their report, PIER/BULKHEAD RE-USE ASSESSMENT AND SHORELINE TREATMENT RECOMMENDATIONS, November 1981 . An evaluation of the reuse of those piers that could be rehabilitated in conjunction with bulkheading and an improved shoreline was undertaken to determine the feasibility of their inclusion as part of the 30% open space required; this was due to the fact that the amount of developable vacant land remaining is sharply reduced after deducting the steep Palisades cliff face and an estimated 11 acres that will be required to provide the 100 ft. R.O.W. width for the proposed Hudson River Route, needed for access if the waterfront is to be developed.

The required 30% public recreational area amounts to 30.6 acres of the privately owned dry land. As shown on the accompanying table, IDENTIFICATION OF WATERFRONT PROPERTY IN WEST NEW YORK, there are 117.58 acres of land excluding the parts of 4 properties that are under water; after subtracting the County Park (4.24 acres) and the Town of West New York's swimming pool recreation area (11.44 acres) there remains 101.9 acres of privately owned land; 30% of that amount comes to 30.6 acres, the proportion used in the design

concepts for open space. When those 2 parks are subtracted from the total 181.45 acres of land, which includes 69.87 acres under water, there remains a total 171.77 acres of dry and wet land, 30% of that amount is 51.5 acres, used in alternate design concepts.

Use of Dry Land Only

If only "dry" land will be used in the developer's fulfillment of the zoning requirement that 30% of the gross area be used for public recreational, etc. open space, this would amount to 30.6 acres. If such "dry" land must also be contiguous to the River, those takings would comprise the flat, most developable land in the waterfront. After subtracting the estimated 11 acres needed for right-of-way for the Hudson River Route and for an estimated 5.0 acres for the steep parts of the Palisades, there would remain approximately 60± acres of the 101.9 acres of developable land.

Use of Dry & Wet Land

Based on that reduced amount of developable land described above and on an interest in the adaptive reuse of some of the salvagable piers and an improved shoreline for recreational use, an alternate approach to the provision of the required 30% public open space use was considered; that would include the usable piers and some smaller parts of the properties under water, with the majority of the proposed 51 acres of public lands "dry". This concept also includes the adaptive reuse of Piers 9, 11, 11A, 13 after their

design and repair for recreational purposes. The selection of those 4 piers and the use of an improved shoreline is based on the previously noted report made by the engineers which is summarized below; it includes a concept for a marina for approximately 200 boat slips between Piers 11 and 11A, and approximately 450 lin. ft. of revetment to improve the shoreline from Pier 8 to 16 as shown on the accompanying map.

SUMMARY OF ENGINEERS REPORT

The findings and recommendations of the report, PIER/BULKHEAD RE-USE ASSESSMENT AND SHORELINE TREATMENT RECOMMENDATIONS dated November 1981, prepared by the engineering firm of Flaherty Giavara Associates were instrumental in the development of some of the concepts for obtaining and using the required 30% of privately-owned land for public open space use. The report examines existing piers and bulkheads and the feasibility of their future use as part of the required public recreational land and also deals with the treatment of the shoreline and near shore waters that is relevant to the reuse of existing piers and bulkheads. Their findings are summarized below:

1. All of the bulkheading which occupies the shoreline in the West New York waterfront is seriously deteriorated but a substantial portion still serves to prevent erosion.
2. There are 12 piers and 1 jetty located along the West New

York waterfront. As shown on the accompanying maps, they are numbered 5, 6, 7, 8, 9, 11, 11A, 12, 13, 14, 15, 16. With the exception of Piers 7 and 8 which have masonry and stone foundations, the rest are made of timber.

3. Five of the piers: #5, 6, 14, 15 & 16 are deteriorated or fire damaged to a degree beyond any use and their remains should be removed; two others, #7 & 8 were seriously deteriorated and unsuitable for repair. Another, #12 was damaged below the water line presumably by a vessel and is buckled from the breaking of support pilings below the water line. Water depths are very shallow, between 1 and 2 ft. at low tide at the head of the Pier.
4. There are 4 piers and the jetty recommended for retention and possible rehabilitation for public recreation use; they are:

Pier #9, which was judged to be the one in best condition, is presently used for the mooring of several large, barge-mounted cranes. Water depths of 20 ft. at low water were found at the head of this pier.

Pier #11 which is currently in use as an anchorage and for trailer storage. The deck appears level

and current loads suggest that it is sound. Part of the pier was damaged; 5% to 10% of the deck is missing, and the cinder coverage is causing accelerated decomposition of the timber. The potential cost of this pier's repair, which would include removal or replacement of a portion, may render its ultimate use economically infeasible.

Pier #11A which currently is in use for storage of tank trucks and a mobile crane. This pier's overall condition appears to be sound and its consideration for future reuse for public purposes is appropriate.

Pier #13 is used as a storage facility for marine construction and equipment and includes a large platform. No damage was observed and the support pilings appeared serviceable; this pier was recommended for retention and considered for reuse possibly as part of a recreation complex.

The jetty between Piers #12 and #13 is currently in use as a mooring for boats; the inspection indicated that the jetty is structurally sound: the deck surface is level although the condition is deteriorated, and support pilings appear in good

condition and are considered capable of supporting loads from recreational use.

The 3 piers - #9, #11A, #13 and possibly #11 and the jetty were deemed as potentially suitable for future recreational use. However, additional evaluations will need to be conducted to inspect the support pilings under water and in the interior areas; representative testing of timber materials should be done to determine their life expectancy. Based on the degree and types of past damage to the piers (collisions, elements, fires, etc.) the engineers recommend re-inspection before further testing before the specific adaptive reuse for recreation purposes is determined.

5. There is limited access to the waterfront via a narrow overpass at the northern end of the site at Lot 9 in Block 169.
6. Bulkhead reuse: due to the deteriorating condition and lack of on-going maintenance, the entire bulkheading will eventually have to be replaced. This will need to be staged due to an anticipated substantial cost, with the first priority area being the 1400 ft. of lost and seriously heaved part replaced, complemented by some minor repair of the other sections to maintain a safe condition.

7. The Engineers discuss 3 alternatives to shoreline treatment including dredging, filling, pier and float construction and bulkhead reconstruction. Dredging is not recommended. Shoreline stabilization includes 3 types: timber bulkhead, sheet steel bulkhead and stone revetment. Stone revetment is recommended as the most economical of the 3 types with the greatest life expectancy and esthetic compatibility. Filling: some minor filling of berthing areas is recommended for access conditions. The Engineer's recommended "Alternate C" shoreline treatment, on which the public land allocation design concepts were based, is summarized as follows; as illustrated on their map, Shoreline Treatment

- Removal of derelict piers, vessels and debris
- Placement of 4,660 feet of revetment in two phases
- Filling of 2.8 acres of disturbed river bottom in 4 locations
- Dredging of approximately 8.8 acres of river bottom as necessary to achieve a five foot water depth at low water
- Extension of the storm drain and sewer outfall which occur in the berthing area between Piers 13 and 16
- Construction of some 224 marina slips for 35-40 foot shallow draft (4-8 foot) vessels
- Disposal of dredged material behind the revetment as fill, tested first to establish an acceptable quality.

Generally, this "Alternate C" improvement program would be the most comprehensive, the most ambitious and, consequently, the most costly. However, it would also be the most productive in maximizing the use of a limited quantity of useable land where its use potential and, therefore, its value are expected to accelerate. The recommended adaptive reuse of some of the piers, where the rehabilitation cost will be economically feasible, is supported by the hypothesis that such waterfront structures could be integrated into design concepts for public recreation use of the Waterfront, as park-sitting areas for occasional concerts, dancing, theater presentations in the evening during the warm weather. During the day, such rehabilitated piers could be used for fishing, passive park use, hobbies and crafts, etc. An integrated reuse of the piers with an adjoining marina could also be administered through a concession to a private operator, rather than by the Town of West New York, and could include appropriate recreation-related concessions (e.g. eating and drinking establishments) of a size and scale that would relate to the size and load capacity of the pier, the ease of access and other matters. Also filling in small sections of the improved shoreline in combination with the areas of the piers to be retained, could add an additional 6.2 acres of waterfront land for public recreation use.

TWO CONCEPTUAL PLANS

Two conceptual plans were prepared which contain alternate methods to implement the Town of West New York's zoning requirement of 30% open space. The concepts are shown graphically on the accompanying maps entitled CONCEPT #1 RECLAMATION OF WATER'S EDGE and CONCEPT #2 NO RECLAMATION OF WATER'S EDGE. Both conceptual plans contain the general information found during the course of this study, which includes the bulkhead line, the pierhead line, tidelands, detailed information, topography, knowledge of ownership, acreage, and dimensions of each property. Both concepts are also based on the Engineers' report on the condition of the piers, identifying those that warrant demolition and those that could remain for future reuse, the need for improvement of the shoreline's bulkheading, where some light filling could take place as a corrective measure without causing a negative impact on the environment. Both plans include a waterfront walkway and bikeway for future public recreational use. Both plans also were based on the acknowledged need for a new road to provide better access to the waterfront and to service any future residential and/or non-residential development; and both plans are based on a rejection of the proposal made by the State DOT for their Hudson River Route's alignment which goes through the center of the flattest, most buildable part of the area; development of West

New York's Waterfront will be limited by the presence and steep grades of the Palisades Cliff face on one side and the Hudson River and waterfront, which must be public open space, on the other. This considerably reduces the amount of land and development potential of the Waterfront. The more preferred location of the highway would be along the edge of the Palisades Cliff, thus freeing a greater area for development that would not be cut in two pieces by a highway.

Review & Comment on Both Concepts

Concept #1 RECLAMATION OF WATER'S EDGE is the more productive and more responsible of the two concepts. It is also the more interesting of the two concepts in terms of design possibilities and maximization of the use of existing elements. Under Concept #1, the removal of the decaying and derelict piers, that might not be worth the cost of their improvement, is the first step in a comprehensive clean up (including derelict barges, sewer outfall, etc.) and to revitalize the area for future use by West New York's residents. At present, the waterfront appears as a dumping ground and wasteland. The second major step would be the improvement of those 4 piers and the jetty which the Engineers evaluated as appropriate for retention and rehabilitation for future public recreational use. In conjunction with their use, is the recommended revetment to stabilize the entire shoreline.

There are shown several small areas for filling to correct its "circuitous contour" where pockets with sharp corners serve as collectors of debris which impact badly on the environment. Filling is subject to the review and approval of review agencies. The combined areas of the improved piers and jetty and the small filled areas will reduce the total amount of the most buildable land near the water that would need to be provided by a developer in meeting the zoning requirement of 30% open space land, contiguous to the water. These types of improvements will provide an attractive "climate" for the development of appropriate waterfront land uses such as a marina, that may offset the limitations on yield from development. The limiting yield that occurs from the other zoning requirements (e.g. maximum building height, maximum residential densities, etc.) in combination with land that will be needed for the 100 ft. right-of-way of the Hudson River Route.

Under this concept, basic needed improvements, albeit very expensive ones, would be made but it is expected that there will be wide public use of such waterfront facilities as the renovated piers for passive and active recreational use. The walkway/bikeway will link the playfields and other public open spaces to be developed on the land that will be acquired under the CWD Zoning, from the new residential and compatible non-residential development that will eventually take place in West New York's Waterfront.

Concept #2, NO RECLAMATION OF WATER'S EDGE is also based on a needed clean up of the shorelines, including the removal of derelict barges, sunken ships, debris; this concept also includes the public walkway and bikeway along the full 6,600 feet width of the Waterfront, accompanied by the same types of linkages to the new private development that will take place in the Waterfront as well to the built-up part of the Town. The main concern over this concept is that the 30% open space requirement on dry land contiguous to the water in combination with comparatively restrictive other controls of the CWD Zoning plus the limitations on building from the physical characteristics of the area may delay and deter development for a extended time period due to the limitations on the yield from development. If this happens, then there may be no development for an undetermined period of time and West New York's Waterfront may continue as a "no man's land".

Consistency of Draft Plans With Coastal Resource & Development Policies

Both of those concepts are consistent with the policies of the Division of Coastal Resources as they are articulated in the first part of the report and particularly on the following five conditions: recreation priority, public access to the waterfront, transportation use, filled water's edge, and buffers and compatibility of uses.

The use of at least a third of the land contiguous to the water for public recreation purposes demonstrates that priority. The required contiguity of the public land to the water will ensure public access, which will be facilitated by the proposed walkway and bikeway, which also must be contiguous to the water. Other transportation uses are also part of the proposal; as noted on page 35, the alignment of the State's Hudson River Route was not found acceptable and it is proposed to be realigned, away from the water's edge, close to the base of the Palisades. The proposed walkway and bikeway are part of the recommended design concepts. The proposal to fill designated small areas is essentially one to remove a contour of "pockets" and "corners" where debris collects; it is in the interest of improving the physical environment rather than disturbing it. Vegetation and buffers, appropriate to the location, will be required and used. No component of either concept would be inconsistent with Coastal Resource policies. The types of land uses permitted under the CWD Zoning are low density residential uses and light impact industrial and residential-related, neighborhood type commercial uses of land. During the course of reviewing proposals for development in the Waterfront, a review of the DEP's special area will be made to ensure compatibility.

COMPONENTS OF DESIGN CONCEPTS

The design concepts to achieve the most usable and accessible public open space use of West New York's waterfront include the following components as well as the Engineers' analysis of the feasibility of reuse of some existing piers and the recommended treatment of the water's edge. Those components include specifications for a waterfront walkway and bikeway, information on signs, fencing, lighting and other street furniture and paving materials discussed below.

LINEAR WALKWAY & BIKEWAY

All of the design concepts considered for public open space use in the Waterfront include a linear walkway for pedestrians and a bikeway for the recreational enjoyment of users of the open space as well as for access. The linear walkway considered at this stage of the design concepts is recommended to have a 30 ft. right-of-way width and the bikeway is proposed at a 15 ft. right-of-way width which includes a landscaped separator, from the pedestrian walkway, of approximately 3 ft.

The proposed walkway would be contiguous to the water with direct access to the 4 piers that were recommended for retention and rehabilitation by the Engineers; the exception to walkway contiguity

to the river would be the location of a recreational use that depends on water frontage, such as a marina between Piers #11 and 11A; there abutting property would need to be used for marina-related functions such as a boat launching area; and the walkway and bikeway would be more appropriately located on the northern edge of the public open space lands. The walkways are also shown as branches into the areas to be developed to serve as pedestrian linkages to the property that will eventually be developed into residential and non-residential uses of land that are permitted in that zone.

The proposed bikeway is a Class II bikeway as defined in Urban Planning and Design Criteria, DeChiara and Koppelman: "a restricted right-of-way designed for the exclusive or semi-exclusive use of bicycles where through travel by motor vehicles would not be allowed but where pedestrian crossflows would be allowed. The recommended minimum width of one bike lane is 3.3 ft. For 4 lanes, at least 11.8 ft. minimum effective width is recommended; a landscaped separator strip of approximately 3 ft. is recommended between the bikeway and walkway. A design speed of 10 m.p.h. was used in establishing the minimum 3.3 ft. width that would allow for lateral movement between cyclists' clearance of obstructions and other hazards.

STREET FURNITURE, PAVING & OTHER IMPROVEMENT OF THE LINEAR WALKWAY

The concept of a linear walkway contiguous to the water's edge can be realized and implemented when substantial development of the waterfront is assured and begins to take place. That is when the linear walkway will be needed as a means of pedestrian access to the public open space. Its full use by residents from other neighborhoods will also be activated if the walkway will be improved as an attractive recreation place for pedestrians as well as joggers. The waterfront presently is not an attractive environment that would draw residents for such recreation. A comprehensive and bold plan is needed to transform the waterfront from its present "dumping ground" look into an environment that will attract users. The concept should include the types of paving materials, lighting standards, benches, trash receptacles, kiosks for public notices, and other appropriate street furniture, signs, landscaping discussed and illustrated in this part of the report.

Paving

Paving for the pedestrian walkway could be an asphalt block in either the natural black color of the exposed aggregate pavers that also come in attractive greys, tans, browns. An alternate material is the manmade interlocking concrete paving stones which are sturdy, long range improvements that have a minimal

water absorption. As shown in the accompanying sketches the "Trillium" or "Finetta" designs of the KNR Company are attractive designs that would be compatible with the other street furniture recommended here.

For the bikeway, the most appropriate treatment would be smooth asphalt paving rather than blocks or stones.

Lighting Standards

Lighting standards for the walkway should not exceed a height of 12 ft.; along some paths and the walkway the 4 ft. posts could also be used. Lighting standards should be installed at intervals of at least 30 ft. The height of the poles and their placement should be of a human scale which will attract and "invite" the user and create an environment where he will feel comfortable. This will also be compatible with the "low rise" image that the Controlled Waterfront Development District requires and the scale of the other street furniture recommended.

For longevity at this waterfront location and simpler maintenance metal posts are recommended instead of wood. As shown in the accompanying sketches, the prototypes are of contemporary design rather than traditional ones or copies of ornate "Colonial" or later styles. It is expected that the residential and non-residential buildings that will be constructed as primary development of the waterfront

will be of contemporary design and it is recommended that the lighting standards as well as the other street furniture also be of simple, adaptive contemporary design.

The aluminum square pole of the Pfaff & Kendall Co. and the globe and simple post design of the O-P Overall Product Co. are examples of appropriate designs.

Benches/Information Kiosks/Trash Receptacles & Other Street Furniture

The major concern over the various pieces of street furniture that would be used along the walkway and in the public parks and recreation areas is that they must be of appropriate, i.e. human scale, of compatible designs that will mesh into one orderly attractive environment, made of materials that are sturdy, of minimum maintenance and as vandal-proof as possible and that would not deteriorate faster due to the water's edge location of the walkway.

As shown in the accompanying sketches there is such street furniture available.

Benches

There are available numerous well-designed benches of wood, concrete, or metals or combinations of these materials. Some

examples are the laminated wood benches produced by the Macotta Co. of Madison Heights, Michigan which are 21 inches high and available in lengths of 50, 72, 84 or 96 inches, in designs with and without back rests in slightly varying designs, e.g. concave or flat seats.

The precast concrete and natural anodized aluminum benches produced by KING 600 Street Furniture, of Canadian origin, are good examples of appropriate design, sturdy materials and a good scale in relation to the lighting posts and other street furniture. The same company produces planters, trash receptacles etc. of the same materials as part of a group of components of street furniture.

The Canadian KNR Company whose lighting designs were previously discussed also produce benches, combined wall supports and seats, planters, steps, etc., of the "Garden Stones" series attached here; these are made of mixed concrete, and are considered as good looking, durable, low maintenance types of street furniture that would be appropriate.

Kiosks & Trash Receptacles

Kiosks are elements of street furniture that serve to provide information or direction through the signs that are posted on them; they can also be used with attendants when such services

are required. Furthermore, small scale kiosks are sometimes used as newstands for the sale of cigarettes, sodas, publications or, as in Paley Park in New York City, as food stands where light refreshments are available in an orderly, functional arrangement. Kiosks are available in a variety of designs and materials; or where they will contain persons providing services, can be designed as free standing structures by the architects and/or engineers preparing the final design for the public park from the required open space. The accompanying sketches illustrate kiosks of appropriate size, scale and design for the Waterfront in West New York.

Trash receptacles are another element of street furniture which are important because their number, location and ability to transmit their function to the park user, in large measure, control the appearance and the quality of the ambiance of a park or walkway. When heavily littered, public parks cease to attract users. The manufacturers of street furniture supply municipalities with functional, sturdy, and attractive trash receptacles of the same design as their benches, seating etc., as shown in the accompanying sketches

Signs

Signs will be needed to direct the users of a variety of recreation facilities that will be located within a relatively large area for the Town of West New York. The signs must be functional: visible, clearly discernible messages and/or directions, and of designs and materials that will be compatible with the other street furniture and of quality that will contribute to an overall appearance of an attractive, well-regulated public recreation area. Generally, signs in public parks and beaches tend to be unattractive, institutional and foreboding, e.g.

NO [running
littering
dogs
eating
spitting

and thus attract negative reactions and hostility of the users of the park. These signs frequently cause graffiti and vandalism.

In this project where the area of concern will be the use of public recreation space, including a pedestrian walkway and bikeway, the need for signs is mainly for direction, identification of specific facilities and the Town's rules regarding the facilities' use and public behavior. However, the signs should be of dimensions and, for free standing ones, a maximum height that would be compatible with the human scale of the proposed street furniture. The selection of materials and colors should also be re-

lated to the outdoor, water's edge location of the walkway and to the Palisades Cliff face which separates the outer edge of the CWD waterfront zoning district from the rest of the Town, which, in that location, is of a high density urban grain.

The Palisades Cliff face is being protected by the Town of West New York's ownership as a nature area/overlook/walkway without any extensive installations of active recreation facilities other than the swimming pool at 60th Street. The "sign plan" for the public open space area in the Waterfront should be a comprehensive one, based on a minimum number and a most effective design allowing for some variations of design types and materials and a coordinated or uniform color scheme. The following sketches illustrate the "Futura, Demi-Bold" which is a type that communicates clearly and would be compatible with the contemporary design of the street furniture. For signs that will be lighted at night, no bare incandescent light sources should be used nor should flashing, moving, flickering luminous signs or other animated devices be utilized; instead illuminated signs should be back-lighted within a plexiglass or other cover that will not be damaged easily.

The sketches also show wooden posts supporting the larger, free-

standing main signs such as the one found at the entry point where the facility is identified and the tone of the overall park improvement will be established. Within the facility, the secondary signs such as the "auto/bike" example can be metal, in brighter colors and of a lighter, innovative design. The height of the walkway/bikeway signs should be established in regard to the type, density and controlled height of the landscaping separator.

Recommendations for the Reuse of the Piers

As noted in the preceding summary of the Engineers' report, they have recommended the retention, for recreational reuse, of Piers #9, 11, 11A, 13 and the small jetty; however, in each case it will be necessary to repair and rehabilitate them for future safe use before any additional improvements will be made for specific recreational functions. Furthermore the extent and cost of their improvement is inseparable from the needed improvement of the 6,600 linear feet of bulkhead that contains the shoreline.

The adaptive reuse of all of these piers is restricted not only by their deteriorating condition but also by their dimensions and load carrying capacity. Therefore the projected multi-use

of the piers for recreational purposes falls into 2 distinct categories. One consists of diversified informal light use(s) not involving dense crowds, that could take place at one time; for example a pier could accomodate fishing, benches for sitting/sunning, senior citizens' programs of the Town's Recreation Department such as checkers, chess, shuffleboard or totlot activities such as the "Story Book Hour", magicians, mimes, puppet shows and similar passive/spectator-type recreational activities. The other type of activity involving larger numbers of people, comprising an audience which will be seated in a park area near but off the piers) while the entertainment (usually musical or theater) they will be watching could be performed on the pier. Thus a large number of West New York residents could be accomodated in an outdoor setting that would enhance a concert or other theatrical performance during the warm weather without endangering the safety of the participants. An amphitheatre should be considered as an appropriate facility for such use.

There is also the possibility of the occasional use of such facilities by private users, for a fee, as takes place at the Bronx Botanical Gardens or the Boston Aquarium buildings where private parties and charitable events take place. The use of temporary shelters such as tents or inflated cloth containers

could extend the number of months such activities could take place on the piers. However, this type of extended use of such public facilities could not be expected to happen until the future private development, as well as the public park system, have taken place and the waterfront will be occupied.

OTHER DESIGN CONCEPTS

In addition to having public recreational open space at the Hudson River's edge with access from a linear walkway contiguous to the water and a bikeway adjacent to the walkway, there are other important elements to be considered which include:

1. Allocations of waterfront land of large enough dimensions and areas that would enable the provision of some of the recreational facilities that are lacking and for which there are no other vacant properties elsewhere in the Town. A football practice field for the school system is an example.
2. Linkages (pedestrian) to those parts of the Waterfront where other uses of land will be developed. Under the CWD zoning for the Waterfront, some commercial and/or light impact industrial development is allowed in small proportions and is of a character and impact that will be comparable with the types of residential develop-

ment that will take places the linkages should extend to non-residential as well as residential uses of land.

3. Linkages to the rest of the Town which is built-up and deficient in the amount of open space that is available to its residents for recreational use. The steep grade of the Palisades which lies between the built up part of the Town and the Waterfront will require a careful review of any proposed connections.
4. Coordination of the alignment and needed R.O.W. land for the DOT's proposed Hudson River Rte with the linear walkway, bikeway, and the above 3 other design elements relating to transportation.

Cost Estimates

Some concept of the costs involved is provided here as background material and as an element for the Town's consideration in negotiations with developers over the feasibility and advisability of reuse of any 3 of the 4 identified piers, the needed shoreline treatment and other matters related to the open spaces requirement of the Zoning Ordinance.

The cost of paving the walkway and bikeway and the purchase and installation of street furniture and landscaping, comparable to

similar outlays elsewhere in West New York, are secondary in comparison with the cost of the needed improvement of the shoreline and would be most appropriately evaluated at the time of improvement. According to the report by Flaherty Giavara there were three types of shoreline stabilization evaluated, which included:

sheet steel bulkhead	@	\$1,000 l.f.
timber bulkhead	@	\$ 300 l.f.
stone revetment	@	\$ 210 l.f.

The stone revetment which is their recommended treatment is the most economical of the three. Considering the 6,600 linear feet of bulkhead needing improvement, the lowest unit price is significant; this is especially so in view of the Engineers' statement that the stone revetment will have the "greatest (unlimited) life expectancy and habitat value".

The shoreline improvement costs will become the developer's responsibility if they are part of a developer's proposal to use a pier or part of a lot under water in fulfillment of the "30% open space" requirement. Although the expected total costs will be large, they are not isolated or fixed and should be viewed in relation to offsetting financial possibilities such

as the provision of a marina or the gaining of some additional land on which more of the development can take place. As is the case with the preparation of a site plan for waterfront development, the plan's cost analyses and financial plan must also be comprehensive with all parts well-related.

How & When Design Concepts Can Be Obtained

The 30% requirement for water's edge open space is contained in the Town's Controlled Waterfront Zoning District which also requires that a comprehensive plan for the entire site be prepared and presented at a public hearing before any development or any stage of a development may begin. The zone's detailed submission requirements are very comprehensive and there is a provision for the developer to have a pre-application conference prior to his submission of an application and development plan for tentative approval. It is at this very early stage that the Town should evaluate the land that a developer proposes in fulfillment of the 30% open space requirement and, any interest in the adaptive reuse of the piers, the linkages between that open space and the private, i.e. residential, commercial, etc., development he proposes and that exists. Also, if appropriate, the integration of his proposal with the DOT's plans for any future roads in the Waterfront area. In that way the Town will be in a negotiable position to achieve some of these design concepts.

RESULTS OF THE STUDY

The major results of the study are summarized below:

1. Knowledge of the condition of all piers and the jetty and an identification of the four piers whose condition would warrant their retention for rehabilitation and an adaptive reuse for recreational purposes.
2. Knowledge of the poor condition of the existing bulk-head which contains the shoreline and needs to be improved. The rehabilitation and reuse of some of the piers should be considered in combination with bulk-head improvement. The recommended revetment treatment would be the least costly (of three traditional alternative methods), the most lasting and probably have the most esthetic appeal.
3. If such improvements would be made by private developers of waterfront land as part of the provision of the 30% open space, at the water's edge, there might be offsetting financial benefits from such private developments as a marina, or other water-dependent land uses.
4. The "Special Areas" which require focused attention and special management policies as defined in the Department of Environmental Protection's COASTAL RESOURCE AND DEVELOPMENT

POLICIES publication, which includes the acceptability conditions for their use, have resulted in identification of 9 of those "special areas" in West New York. As described in those sections of this report, they include: shellfish beds, filled water's edge, natural water's edge - flood plains, historic and archeological resources, public open space, large rivers, finfish migratory pathways, navigation channels, and steep slopes. Their identification with the conditions under which they are acceptable will result in the Town's coordination with the State's policies on protection of the River and prevention of misuse of the waterfront property. It will define the location and the eventual use and types of improvements that will be made of the 30% waterfront land used for public recreation purposes. The Town of West New York is better equipped to protect those special areas at this time.

5. Another result is the formulation of policy and applicable standards for a waterfront walkway and bikeway, which could eventually become a component of any public land designation of a waterfront land in West New York. This also is a "first step" in coordinating the State's proposal for a linear walkway along the entire Hudson River Waterfront in Hudson and Bergen Counties.

6. Design concepts of the integration of some piers and an improved shoreline as part of the provision of open space for public use along the Waterfront.

The overall result of the study is the availability of a considerable amount of useful information to the Town on: which "special areas" exist in West New York's waterfront and how they should be protected and treated and the conditions of their acceptability; the types of land use that are considered appropriate and non-deleterious for waterfront location and the intensity of such land uses; knowledge of which piers are considered suitable for retention, rehabilitation and reuse as part of public open space; the related needed improvements of the bulkheading and the extent and scope of such need; the location, needed right-of-way and other specifications for a linear walkway and bikeway along the water's edge; an awareness of the need to link waterfront public open space with the built up, rest of West New York where additional public recreation space is needed. When the Town of West New York will begin to review developers' preliminary plans and proposals for the development of the Waterfront and the developers' provision of 30% of their property for public recreational use, the Town and its technicians will be better equipped to accept or reject specific proposals for Waterfront land development and the allocation of land for public recreational use.

CONCLUSIONS

The conclusions drawn from this study are that the more preferred of the two design alternates is Concept 1, RECLAMATION OF WATER'S EDGE because it involves the improvement of the shoreline to correct deteriorated existing bulkheading and adaptive reuse of some of the existing piers, where rehabilitation would be feasible; this would involve the use of their lots which are considered land "under water". The recommended revetment to improve the shoreline is the most practical in terms of a comparatively lower cost, esthetic compatibility, and greatest life expectancy. The shoreline improvements for the more preferred Concept 1 also include some minor filling of small sections of the shoreline to eliminate debris collecting corners in 4 locations of disturbed River bottom. It is recognized that filling may not be permitted by the official review agencies; however this will ultimately depend on the extent and impact of a final proposal for such action. Both Concepts 1 and 2 are premised on harbor clean up of debris, derelict piers, half sunken vessels, etc. The advantage of Concept 1 over Concept 2, which is basically one of no reclamation of the shoreline, is that it will enable the ultimate developer of the Waterfront to meet the zoning ordinance's mandatory requirement of 30% public open space with some leeway by using the areas of a few piers and their lots under water in fulfilling that requirement; the result will be not only more dry land

suitable for non-public development, but also the incorporation of the redesigned and rehabilitated piers into a more innovative and interesting public recreation area. Both Concepts include the public walkway - bikeway - landscaped separator, contiguous to the water, as basic elements of the public open space use of part of the property. If the desired Concept 1 cannot be achieved, then the alternate Concept 2 is proposed for consideration by the Town.

While none of the recommended findings of this study are in conflict with the Town's Controlled Waterfront District Zoning, some detailed elements could be added to the language of that part of the Zoning Ordinance.

APPENDIX

Maps, Other Graphics and

List of Environmental Permits Required

BASE MAP

The base map was prepared for this study at a scale of 1 in. equals 100 ft. is available for prints; it shows existing property lines, streets and the following information:

1. Block and lot designation of each property including parts under water, public or private ownership, lot area (in acres) as contained in the records of the Tax Assessor, Town of West New York
 2. Topography at 5 ft. intervals as obtained from the N.J. DOT aerial photo showing a proposed alignment of the proposed Hudson River Route
 3. Bulk Head Line
 4. Pier Head Line
- } from Town of West New York Tax Map
5. Coastal Zone Boundary from DEP, Coastal Zone Management
 6. State ownership of tidelands/riparian rights from DEP's Office of Riparian Rights

MAPPING UNIT LEGEND - TOWN OF WEST NEW YORK

BuB - Urban Land - Boonton Complex, Undulating,
(3-8% slopes)

BuC - Urban Land - Boonton Complex, Gently Rolling,
(8-15% slopes)

BuD - Urban Land - Boonton Complex, Steep,
(15-25% slopes)

- These mapping units consist dominantly of residential lots approximately 1/8 acre or smaller in size. Approximately 50-85% of each lot consists of impervious surfaces. Boonton soils are in Hydrologic Group "C". They typically have a fragipan, or slowly permeable layer that impedes the downward movement of water. In some areas, the fragipan is lacking. Such soils are in Hydrologic Group "B".

HaB - Haledon Soils, Undulating, (3-8% slopes)

- This mapping unit consists dominantly of the unpaved areas that are used as playgrounds, ballfields or for other recreational activities. This soil also has a fragipan in addition to a seasonal high water table that is perched at a depth of 1/2 to 1½ foot beneath the surface in most years. Haledon soils are typically in Hydrologic Group "C" but in such an intensively used urban environment, surface compaction would better warrant a Hydrologic Soil Group of "D".

HuB - Urban Land - Haledon Complex, Undulating,
(3-8% slopes)

- This mapping unit consists dominantly of residential lots approximately 1/8 acre or smaller in size and Haledon soils. Approximately 50-85% of each lot consists of impervious surface.

BrC - Boonton Very Rocky Soils, (8-15% slopes) -

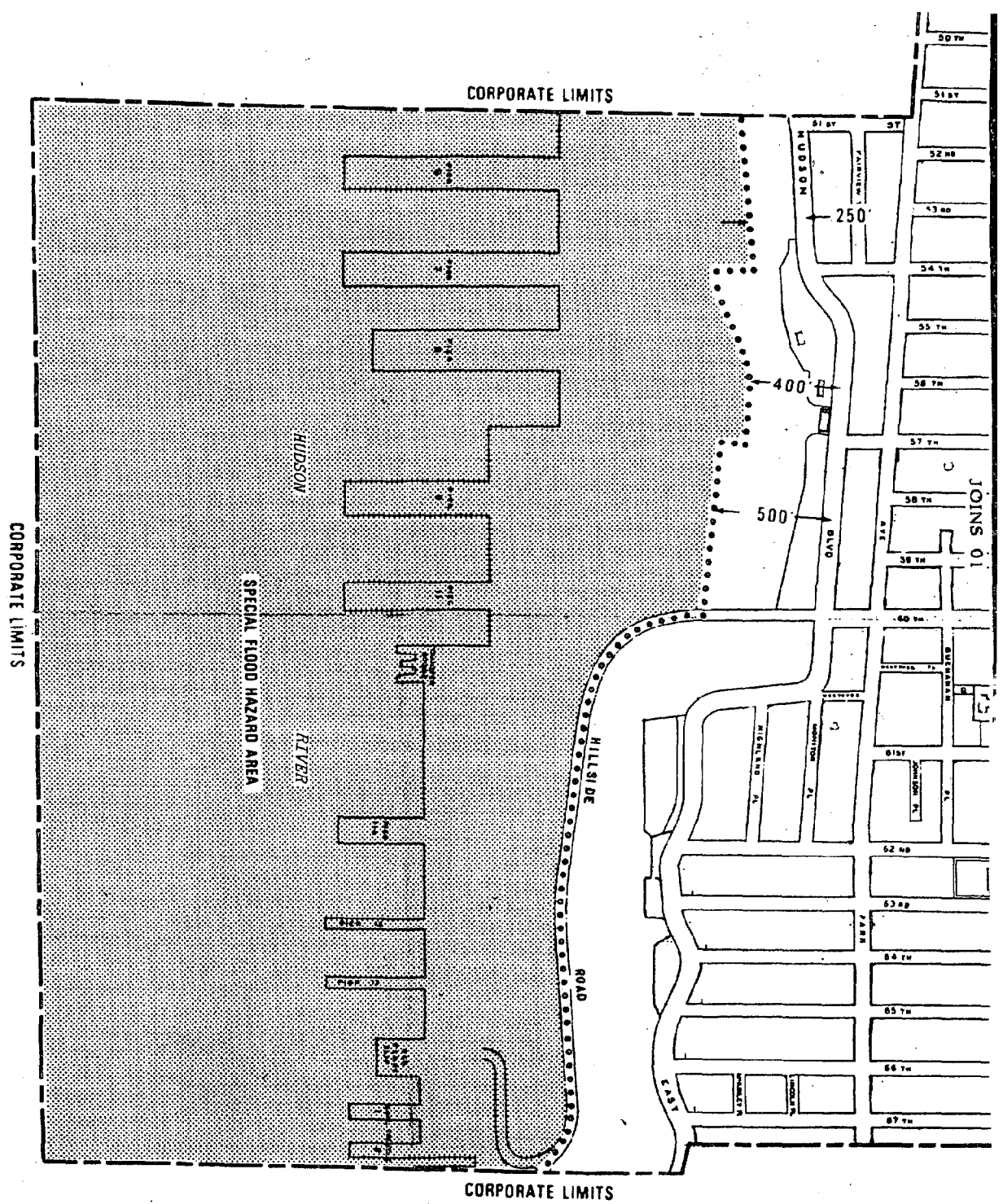
BrD - Boonton Very Rocky Soils, (15-25% slopes)

BrF - Boonton Very Rocky Soils, very steep

- This mapping unit consists dominantly of Boonton soils, (refer to previous Boonton Soil Description) and a high proportion of exposed diabase rock-outcrops on the extreme eastern part of the municipality, facing the Hudson River.

UR - Urban Land

- This mapping unit is on the foot slopes of the Palisades formation and consists of greater than 85% paved surfaces. The underlying material consists of colluvial deposits from the uplands and areas of tidal marsh.

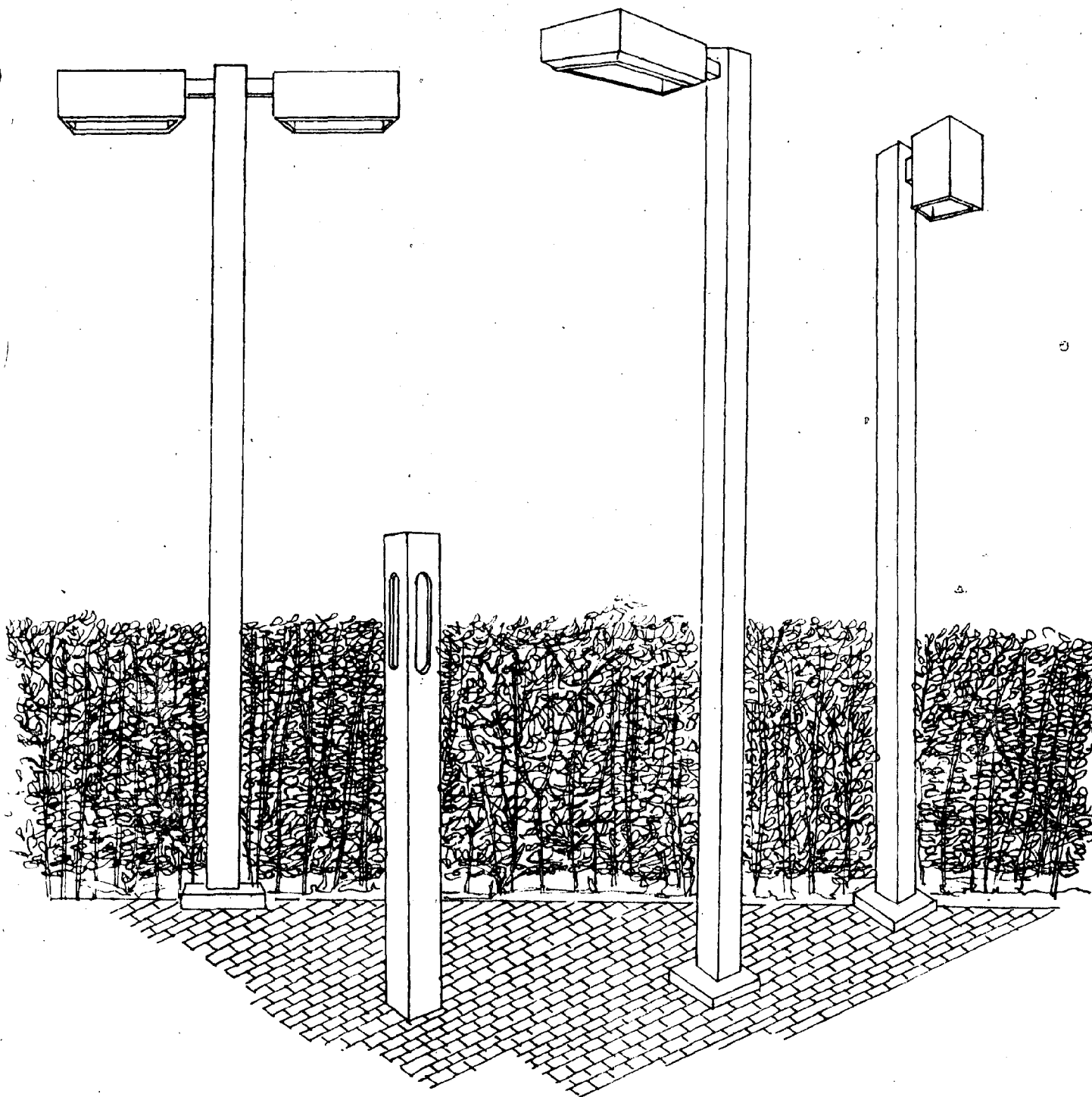


DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
TOWN OF WEST NEW YORK, NJ
(HUDSON CO.)

APPROXIMATE SCALE
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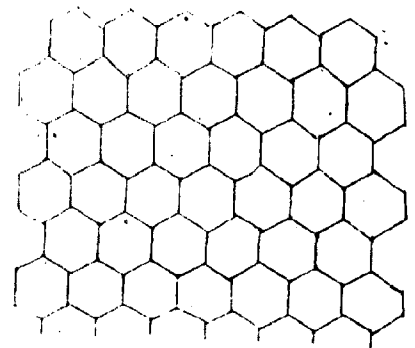
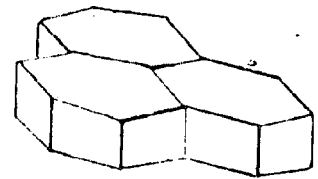
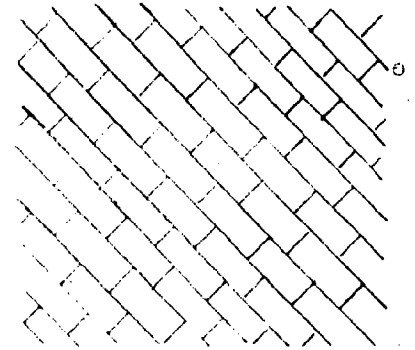
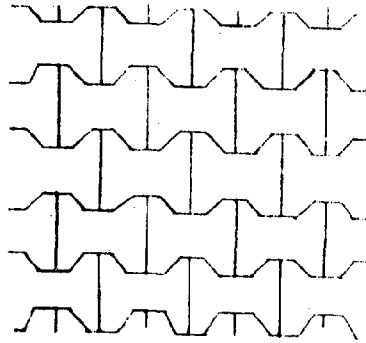
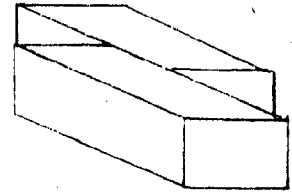
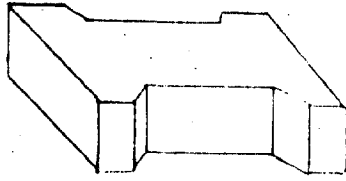
FIA FLOOD HAZARD BOUNDARY MAP
No. H 02

Effective Date:
MAY 31, 1974

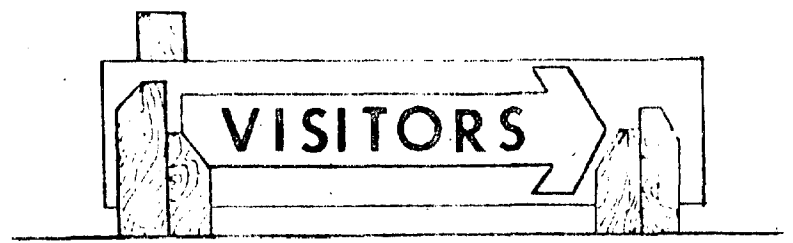
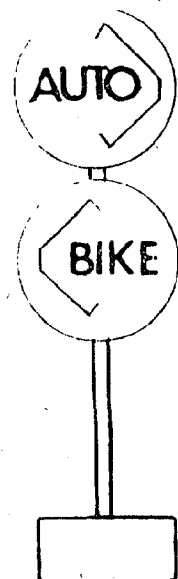
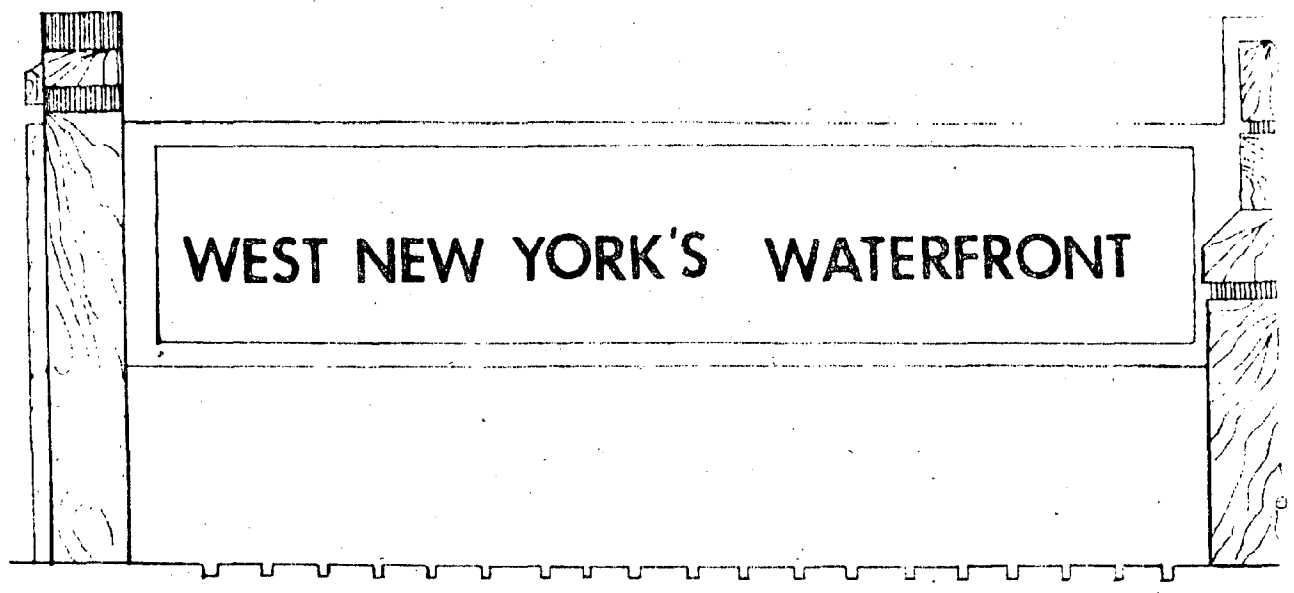


LIGHTING POLES

WEST NEW YORK WATERFRONT STUDY
Community Housing & Planning Assoc. Inc. 1981

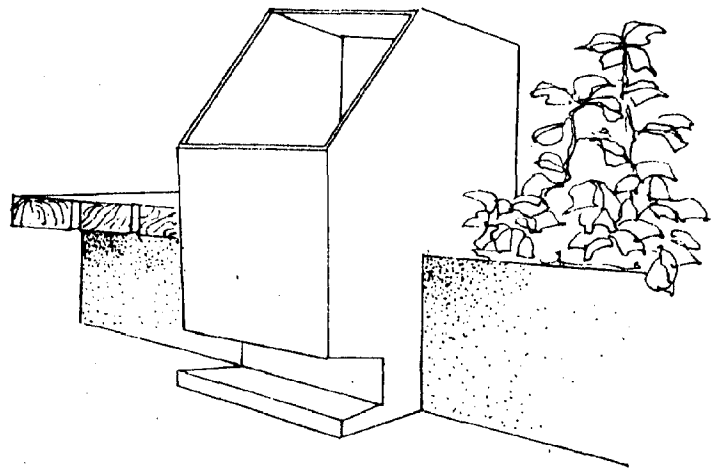
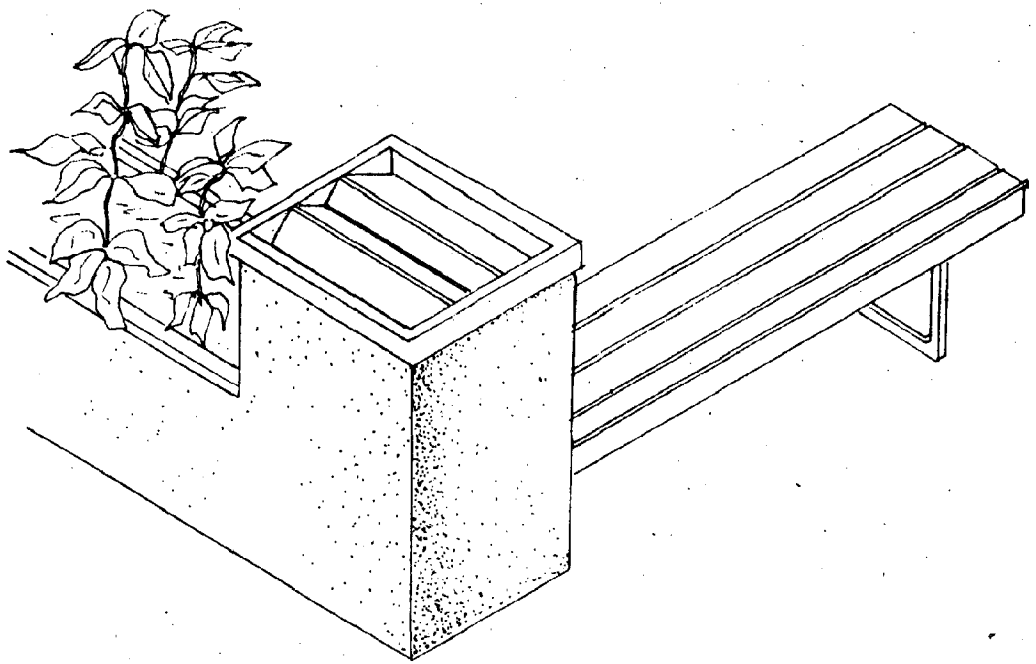


PAVING



SIGNS

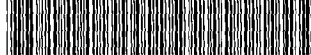
WEST NEW YORK WATERFRONT STUDY
Community Housing & Planning Assoc. Inc. 1981



TRASH RECEPTACLES

WEST NEW YORK WATERFRONT STUDY
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