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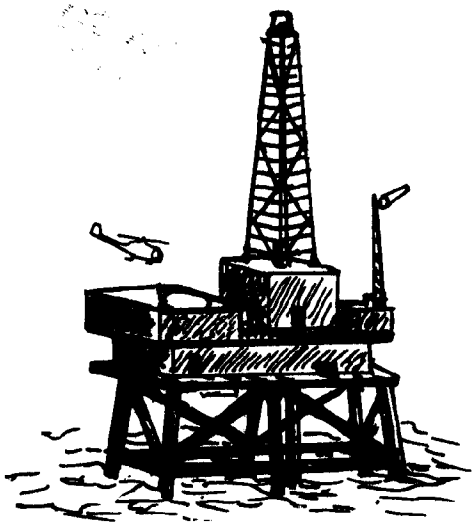

HUDSON COUNTY OFFSHORE OIL AND COASTAL ENERGY FACILITIES STUDY

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December, 1977

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Hudson County Office of Planning

Jersey City, New Jersey

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County Executive

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This report was prepared under terms of contract to the New Jersey Department of Environmental Protection, Office of Coastal Zone Management, with financial assistance under the provisions of Section 305 of P.L. 92-583, Coastal Zone Management Act of 1972.

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I. EXECUTIVE SUMMARY

The Hudson County Office of Planning has undertaken a four month program in conjunction with the Department of Environmental Protection - Office of Coastal Zone Management of New Jersey to study the Hudson waterfront. This study has been directed at the possible location of energy facilities and onshore support facilities within the county in future years as oil drilling begins in the Baltimore Canyon area of the Atlantic Ocean.

This study has been funded by the National Oceanic and Atmospheric Administration (NOAA) as a result of the receipt of a supplemental appropriation by Congress. This appropriation was one of many means Congress viewed as appropriate in response to the OPEC oil embargo and future oil emergencies. Hudson County has joined eleven other coastal counties in the State in this effort. The Office of Planning has been given the responsibility of carrying out the tasks required for this study and to report its findings to the Department of Environmental Protection.

The study encompassed the review of existing local, county, and state coastal publications and policies and their integration into Hudson County's final recommendations for energy facilities and sites. Several inventories were also conducted to gather basic data to be used as constraints in the location of such energy facilities. These included an inventory of the existing energy facilities along the waterfront and related operations; an inventory of industrial zoning areas along the waterfront which would permit compatible energy facility location

with the existing local zoning; an inventory of vacant land sites large enough to accommodate energy facilities; an inventory of transportation facilities related to onshore energy facilities including roadways, railroads, waterways, and airports; an examination of the local economy and how unemployment could be affected by onshore activities; a preliminary inventory of environmentally sensitive lands which should be preserved and buffered along the waterfront; and an inventory of public attitudes and official municipal positions on the siting of energy facilities of all types along the Hudson waterfront.

From these inventories possible sites within the county were chosen and others were eliminated for the location of various types of energy facilities. Of fourteen types of offshore oil and gas related onshore energy facilities, only five were considered suitable for possible siting in Hudson County.[1] These are temporary service bases, permanent service bases, repair and maintenance yards, steel platform installation service bases, and pipeline installation service bases. All these types of facilities were found to be compatible with other uses in industrial areas along the waterfront and could be sited adequately at a number of locations. Their general character as clean, revenue producing operations which tend to generate employment in other related areas enhances their attraction for the Hudson waterfront. Their pollution of the environment in all forms is

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1. The nine other types were considered non-suitable as a result of this inventory process and from meetings with and information received from industry and environmental groups, and also from the review of recent past oil controversies.

minimal and generates little risk in terms of fuel storage and transfer, unlike other onshore operations such as tank farms and refineries.

Those areas recommended for the sitings of these five types of facilities are: Weehawken, conditionally; Hoboken, conditionally; Jersey City, Greenville Railroad Yards and other areas conditionally including Port Jersey and the northern waterfront area; Bayonne, Constable Hook and Bergen Point; and Kearny, Port Kearny. The Liberty State Park area of Jersey City has not been designated as suitable or unsuitable since the Liberty State Park Study and Planning Commission and the Department of Environmental Protection are presently reviewing plans for this site. Their determinations will directly affect the final uses for this 800 acre area.

This report presents the preliminary analysis and findings of the Office of Planning in Hudson County and will be reviewed and revised as necessary in the 1978 program sponsored by the Department of Environmental Protection - Office of Coastal Zone Management. Comments and suggestions by all officials, groups, and citizens of Hudson County have been included throughout the preparation of this document and will continue to be encouraged and reviewed in 1978.

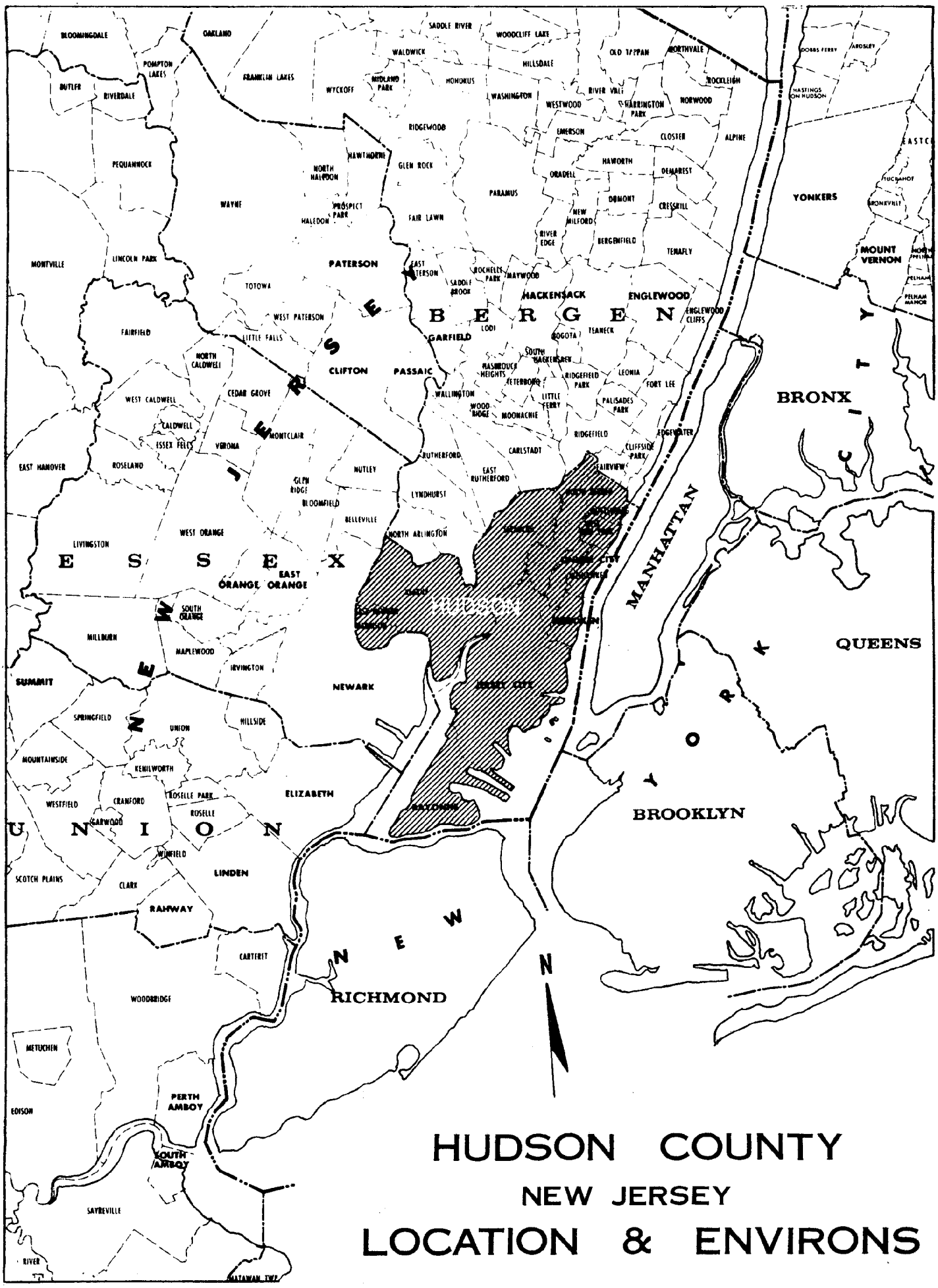
II. HUDSON COUNTY - LOCATION AND ENVIRONS

The County of Hudson (see Map 1) has the unique position in the State of New Jersey of existing side-by-side with one of the greatest cities in the world, New York City. This unique circumstance renders advantages and disadvantages to the area which this report shall reveal. The County is also unique in the fact that it is the smallest county in the State in terms of land area, yet contains the second largest city in the State, Jersey City.

Hudson County is an urbanized county with a population stabilizing at just above 600,000 persons. It is a commercial and industrial center in the State and in 1976 ranked 42nd in industrial activity among the top 50 counties in the United States in the Sales Management and Marketing Magazine Study with almost 3.9 billion dollars in shipments. Hudson County, however, also possesses many thousands of acres of undeveloped marshlands and wildlife preservation areas under the jurisdiction of a unique State agency, the Hackensack Meadowlands Development Commission.

Many waterways also grace the shorelines of Hudson County and include the Hudson River to the east and Newark Bay on the west along with the Hackensack and Passaic Rivers. Numerous creeks also wind their way through the County creating abundant sites for active and passive water recreation. It is unfortunate, however, that few of these sites have been developed or been made easily accessible for recreational purposes.

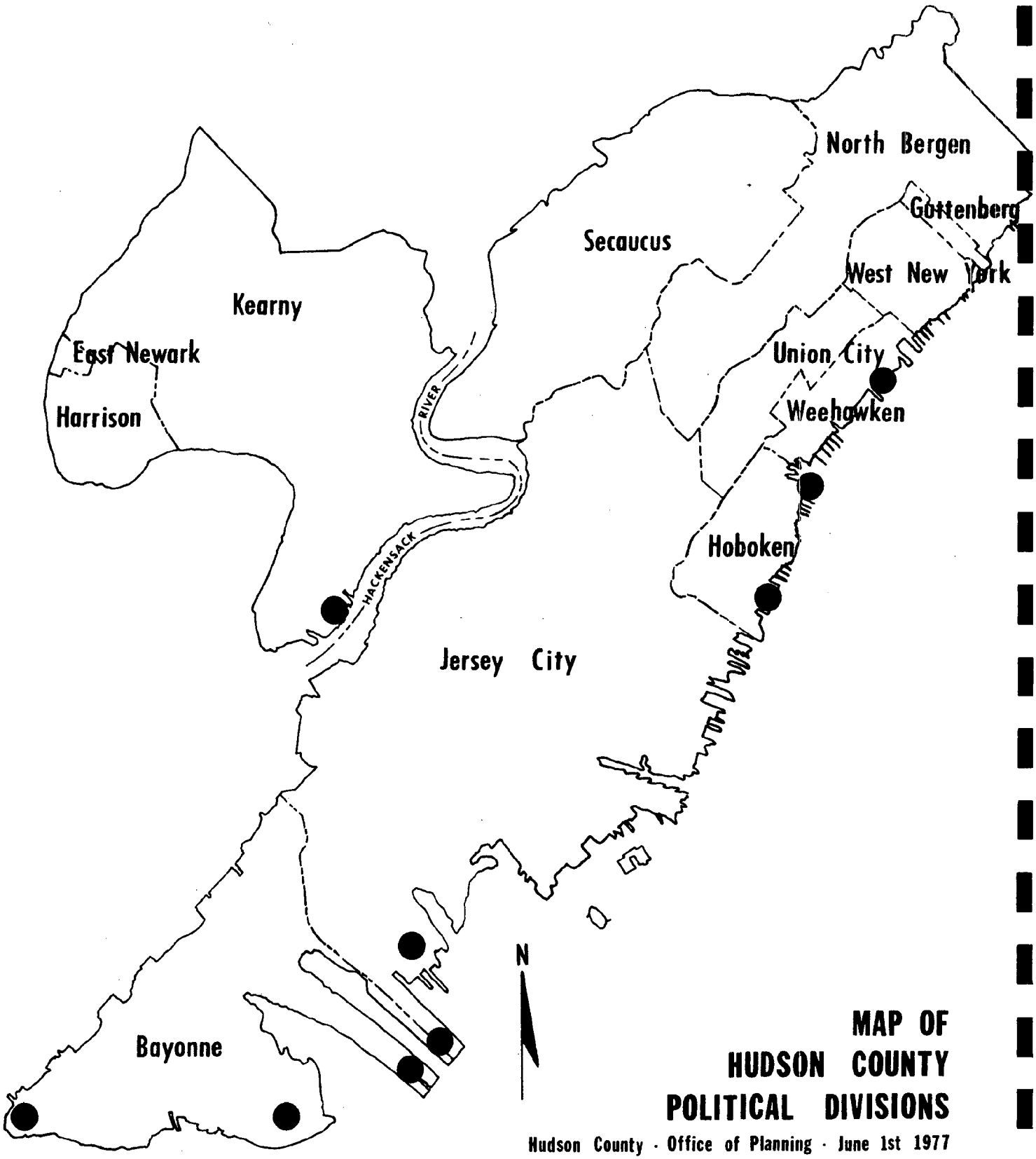
The County also has the unique position of being the only New Jersey County totally within the Port of New York District and therefore completely subject to the authorities granted this agency. It is, however, a very independent county with a long



HUDSON COUNTY

NEW JERSEY

LOCATION & ENVIRONS



MAP OF HUDSON COUNTY POLITICAL DIVISIONS

Hudson County · Office of Planning · June 1st 1977

history of strong political leadership within the State and a record of forefront achievements at all levels of government.

Hudson County is, then, unique in many aspects while at the same time experiencing the same problems and strains of other older urban centers. Many of these aspects and others will be reflected in this report and in the recommendations made to the State concerning coastal zone management in the County.

III. Objectives of the Study

In accordance with the national policy to accelerate the development of energy resources in frontier areas such as the Atlantic Ocean, the Department of the Interior and the oil and gas industry have identified potential areas for oil and gas development. To help states cope with the possible onshore effects of such potential development, the Federal Office of Coastal Zone Management within the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce made available in 1976 additional monies for states to plan for development of outer continental shelf (OCS) oil and gas. New Jersey is located adjacent to the Baltimore Canyon which extends from offshore Long Island to North Carolina and is believed to contain between 0.4 and 1.4 billion barrels of oil and 2.6 to 9.4 trillion cubic feet of gas. New Jersey received a grant of $337,000 to plan for possible energy activities resulting from OCS development and allocated $180,000 of these planning funds to the twelve counties believed most likely to be affected by outer continental shelf and other energy facility development.

The exploration of the OCS for energy represents a novel industrial enterprise for New Jersey and other Mid-Atlantic states and will involve them and the oil and gas industry, federal and local governments, and the private sector in a new set of relationships. For Hudson County the impacts of this exploration are still not known, but the Office of Planning has undertaken to study the facilities associated with such development with the help of a grant from the New Jersey Department of Environmental Protection, Office

of Coastal Zone Management. For the State, the purpose of this study was to provide counties with an opportunity to evaluate land uses as they might or might not be suitable for OCS and other energy related facilities; to assist the state in developing guidelines for the management of siting of such facilities, and also to aid it in developing the energy element as mandated by the New Jersey Coastal Area Facility Review Act of 1973 and the federal Coastal Zone Management Act Amendments of 1976.

For the county, other objectives were achieved in attempting to fulfill the needs of this state agency. The county has been given the opportunity to review local ordinances and zoning codes in an attempt to analyze the capabilities of each community within the county to accommodate OCS facilities consistent with its existing and proposed land uses; it has given the county the opportunity to identify coastal areas within each community via a coastal inventory process which would be suitable for specific energy facilities from the local perspective; it has allowed the county the opportunity to determine which energy facilities are not suitable for location in local communities; it has greatly focused attention on the waterfront areas of Hudson County and increased the awareness of its citizenry of the importance of the Hudson County waterfront; and it has promoted the dissemination of coastal zone awareness and knowledge to local community leaders and citizens who previously were less than adequately informed about coastal zone management.

Most importantly, the 1977 coastal zone program gave Hudson County the opportunity to prepare itself and its member communities for those OCS activities which may take place within

the county in the coming years and to suggest sites for their effective placement in conjunction with local land use and public opinion.

The objectives desired by the State were met while at the same time an area of secondary concern to the county was explored in more depth than at any previous time. A continued effort in this area in 1978 will further benefit the county as well as the state in managing Hudson County's part of the Northern Waterfront area of New Jersey.

IV. SUMMARY OF MAJOR FINDINGS

1. The Hudson County waterfront is a great resource of the County and should be constructively incorporated into the State's coastal zone plan while at the same time maintaining local control over this area.
2. Hudson County in the past has accepted its fair share of energy and energy related facilities in view of local, state, and national needs and interests.
3. The general economic situation in Hudson County and its unemployment in particular requires that portions of the Hudson waterfront be developed to accommodate clean, labor intensive industrial and commercial use.
4. Hudson County encourages the location of clean, labor intensive industry into the county including certain types of energy related industrial activities.
5. The Office of Planning discourages and will not recommend the location of land intensive energy facilities, such as oil refineries, petro-chemical complexes, and marine terminals, in Hudson County.
6. The Office of Planning recommends the location of temporary and permanent onshore service bases as well as repair and maintenance yards in Hudson County at sites along the waterfront which can meet certain land use and environmental criteria.
7. Existing gas, oil, and electric transmission rights-of-way would not facilitate a coastal oriented pipeline system destined for northern New Jersey. A right-of-way system oriented to a Philadelphia-Camden-New York route would be more suitable.

8. Hudson County has not made adequate use of the rail facilities it possesses nor of the vacant land once occupied by a thriving railroad industry.
9. County level planning is the most appropriate level at which to undertake energy facility siting if any level of consistency is to be reached for all cities within each county.

V. OUTER CONTINENTAL SHELF OIL AND GAS ACTIVITIES

Today, United States energy consumption needs exceed the ability of domestic suppliers to fulfill such needs. This situation is projected to continue before alternative fuels or fuel consumption methods are developed. As a result of this situation, the rate at which the United States has been importing oil and other fuels has been increasing at an increasing rate. In 1960 the United States imported 19 percent of its fuel needs, in 1970, 23 percent was imported, and in 1976, 42 percent was imported, with an increasing amount coming from Middle Eastern sources presently engaged in political controversies with the United States. Any increase in dependence on imports as has occurred generates grave concerns on the part of many people within and outside of government. These concerns fall into four basic categories: 1) economic, 2) environmental protection, 3) national security, and 4) multiple use--all of which generate great pressure for increasing domestic oil and gas production.

Increased domestic oil and gas production is possible in four areas: 1) onshore lower 48 states, 2) Alaska, 3) state offshore fields, and 4) the outer continental shelf (OCS). Although state controlled offshore lands hold promise for increased production, their percentage of 1985 domestic production is much less significant than the OCS. Development in these nearshore areas may be difficult also because of local opposition from environmental and community groups.

Taking these factors into consideration, the outer continental shelf is likely to contribute the major portion of the oil and gas produced offshore by 1985. If we assume maximum development of domestic oil and gas, approximately 20 percent of oil per day, and 30

percent of gas per year would come from offshore by 1985.[2] The OCS is also attractive, in general, because of its dispersed location. A number of favorable geological structures are located close to high-demand areas, New Jersey, New York, Massachusetts, California, Texas, etc. Additionally, those in the Gulf of Mexico can be and are readily linked to already established energy transportation networks.

A final industry related reason why the OCS is so ripe for intensified development is the heavy investments which private industries have made in the technology necessary to develop OCS oil and gas. A glance at the television will document the millions of dollars the domestic oil companies have poured into offshore development. In fact, their investments, over time, have reached into the billions of dollars.

It is highly probable that the development and production of the oil and gas in the Baltimore Canyon Lease Sale area will have significant impact on New Jersey and Hudson County. This chapter outlines oil and gas onshore activities related to offshore development and the impacts generally associated with such activity. These activities will then be ranked according to their likelihood and feasibility for locating in Hudson County.

Section A, pp.15&16, is taken from the Source Book, an ASPO publication, and briefly reviews the phases of oil and gas development and the timetable associated with these activities.

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2. Kash, Don.E., et al., Energy Under the Oceans: A Technology Assessment of Outer Continental Shelf Oil and Gas Operations. University of Oklahoma Press: Norman, Oklahoma, 1973.

A. PHASES OF OCS OIL AND GAS ACTIVITY

The process of offshore oil and gas activity is commonly divided into five phases: (1) leasing, (2) exploration, (3) development, (4) production, and (5) shutdown. For a given petroleum field, the phases may encompass a period ranging from 15 to 40 years. Figure 2 showed the phases in the life of a hypothetical oil and/or gas field and illustrated the fact that these phases may overlap considerably. For example, exploration activities continue after development activities have begun, and production will begin before development is completed. Continuation beyond the exploration phase, however, is entirely dependent upon the discovery of economically recoverable reserves of oil or gas.

The five phases of OCS oil and gas activity are described below as they relate to time involved, industry activities, federal government activities, state and local activities and potential onshore facilities.

1. Leasing

Time:

Approximately 19 months from "call for nominations" to the actual lease sale: geophysical exploration (by industry) may have begun many years before.

Industry Activities:

Preparation of internal market and capability analyses; preliminary geophysical exploration (under permit from USGS); nomination of tracts for consideration in the lease sale; preliminary location analysis for staging areas; and possibly onshore site acquisition.

Federal Government Activities:

The leasing process, managed by the Bureau of Land Management (BLM), includes: environmental baseline studies; "call for nominations" by the oil and gas industry of tracts it believes hold the greatest promise for oil and gas; draft (DES) and final environmental statements (FES) prepared by BLM in cooperation with USGS and the Fish and Wildlife Service (FWS); these are submitted to the Council on Environmental Quality (CEQ) and made available to the public; a decision to lease is made by the Secretary of the Interior based on the FES and an internal decision document; at the lease sale itself tracts of the OCS are offered to the "highest responsible qualified bidder," with or without stipulations. Any bid may be rejected.

State and Local Activities:

Participation in the call for nominations, in which state and local governments—and citizens—may identify tracts which should not be considered for leasing ("negative nominations") or upon which special conditions should be imposed; participation in tract selection meetings and review and comment on draft environmental statements (DES). Planning may begin for siting and providing public services in future phases.

Onshore Facilities:

Geophysical and geological exploration vessels will use existing ports.

2. Exploration Phase

Time:

One to seven years from lease sale: an average of two years for discovery of economically recoverable oil or gas reserves and five years or more for identification of size and area of the find; up to five years until lease abandonment if no discovery is made.

Industry Activities:

Additional geophysical surveys to locate geological structures favorable for oil and gas; exploration plans submitted to USGS and "notices" of support activities submitted to appropriate Governors; exploratory drilling by drilling companies (under contract to the oil companies which lease tracts); if discovery is made, intense supplementary exploration, possibly for many years, to establish the area and size of the field, and to ensure that all possible geological structures containing oil and gas have been located; preparation of internal development projections, preliminary field development plans and financial estimates. If no commercial discovery is made, industry will abandon the lease and onshore service bases.

Federal Government Activities:

USGS supervises operations: reviews, accepts and approves exploration plans, issues drilling permits, monitors the drilling procedures; Environmental Protection Agency (EPA) issues pollution control permits; the Corps of Engineers (COE) and U.S. Coast Guard (USCG) regulate navigation.

State and Local Activities:

Assume regulatory and permitting authority over the siting and operation of service bases and portions of operations within the limits of state waters; plan for siting of potential onshore facilities if discovery is made, mitigating employment and environmental impacts, and for providing and financing public services. (May be involved in planning and permits for anticipatory siting—see below).

Onshore Facilities:

Temporary service bases are established, generally located in existing developed harbors, with associated repair and maintenance yards and general shore support (heliports may be established at existing airports); as a rule no new facilities are constructed but industry may anticipate discovery and plan for and option land for permanent service bases; options for pipe coating yards and platform fabrication yards may also be taken; state and local government may be involved in permits for these facilities.

3. Development Phase

Time:

Four to nine years—starting with the discovery of economically recoverable resources and extending through initial pipeline installation or tanker operations.

Industry Activities:

Application to USGS and COE for development drilling permits; Field Development Plans submitted to adjacent states; development drilling and production platforms put in place.

Federal Government Activity:

USGS reviews and approves field development plans, and issues permits for development drilling and OCS gathering lines; COE issues permits for drilling structures and pipelines in navigable waters; BLM issues permits for pipeline rights-of-way on the OCS; the Office of Pipeline Safety (DOT), Federal Power Commission (FPC) and Interstate Commerce Commission (ICC) are involved in regulation of common carrier pipelines. EPA and the Occupational Safety and Health Administration (OSHA) issue permits and regulate operating activities.

State and Local Activities:

Issue permits for nearshore and onshore pipeline rights-of-way, land use, and construction of onshore and nearshore facilities; regulate water and other resource uses, hazards to the environment, and other activities; plan siting of service bases and other onshore facilities listed below (service bases generally are not federally regulated); provide public services for employees and induced population, many of them at a temporarily high level for the relatively short-term development phase.

Onshore Facilities:

Permanent service bases
Repair and maintenance yards
General shore support
Platform fabrication yards
Platform installation service bases
Pipelines and landfalls
Pipeline installation service bases
Pipe coating yards
Partial processing plants
Gas processing and treatment plants
Marine terminals

Essentially all major facilities for the production phase are installed during the development phase.

4. Production Phase

Time:

Ten to 25 or more years—from first petroleum landing onshore to field shutdown.

Industry Activities:

Operation of facilities constructed during the development phase; activities to maintain and improve the rate and volume of production: construction of additional production platforms, new wells and well "workover," additional pipelines, storage facilities; and regular servicing of wells and platforms.

Federal Government Activities:

Monitoring and regulating of routine operations, by USGS, COE, USCG, EPA, BLM, OSHA, FPC, DOT and ICC, and others; respond to oil spills; possible additional leasing.

State and Local Activities:

Provision of public services for onshore facilities and added population; monitoring onshore petroleum operations; anticipation of employment decline during production phase and eventual shutdown.

Onshore Facilities:

Additional pipelines (see Development Phase)

5. Shutdown Phase

Time:

One to three years from end of production phase; representative cumulative time from lease sale—25 years.

Industry Activities:

Dismantling offshore facilities and sealing all wells with cement 15 feet below the surface of the seabed; closing or reducing onshore facilities as production ceases.

Federal Government Activities:

Monitoring and enforcing abandonment regulations, by USGS.

State and Local Activities:

Mitigating past impacts, covering the loss of accustomed revenues, and efforts to maintain the economic base.

Onshore Facilities:

Facilities identified above are closed or shifted to other uses.

SOURCE: The Conservation Foundation, David C. Williams and Jeffrey A. Zinn(eds) Source Book: Onshore Impacts of Outer Continental Shelf Oil and Gas Development. May, 1977, pp.8-9.

B. Onshore Activities Related to Offshore Development.[4]

There are fourteen major types of onshore support facilities which play intricate parts in the offshore oil process. These facilities will be outlined below and will then be ranked as to their likelihood and feasibility for locating in Hudson County.

1. Temporary Service Base

The temporary service base is the logistical link between onshore and offshore activities during the exploration phase of offshore oil and gas development. It is usually established by an oil company or independent service contractor for shipping equipment, supplies, and personnel to offshore sites. The base may include berthage space for 180-220 foot supply and crew boats, dock space for loading and unloading supplies, warehousing, open storage areas, buildings to house supervisory and communications personnel, and a helipad. The bases are relatively small operations requiring limited acreage generally leased on a short-term (one year or less). Because of the high cost of transporting men and materials, companies will seek available vacant land in ports closest to offshore activity.

Requirements and Impacts:

Land	5-10 acres on all weather harbor. Warehouse: ½ acre/rig; open storage: 1 acre/rig; operations and office space; helipad: 1 acre/rig (may be elsewhere); parking area.
Waterfront	200 feet of wharf/rig; 15-20 foot water depth at pier.
Water	5.2 million gallons/rig/year for supply boats.

4. Most of the information used in this section was derived from Factbook: Onshore Facilities Related to Oil and Gas Development, New England River Basins Commission, 1976 and Source Book: Onshore Impacts of Outer Continental Shelf Oil and Gas Development, The Conservation Foundation, 1977.

Fuel	12,800 barrels of fuel/rig/year for supply boats; 13,272 barrels of fuel/rig/year at drilling site.
Labor	45 onshore service base jobs/rig. 75% local.
Wages	Approximately $735,000/year; $17,000 average wage.
Capital Investment	$150,000-$250,000for land leasing and construction.
Air Emissions	Hydrocarbons from fuel storage tanks and vehicle operation.
Wastewater Contaminants	Hydrocarbons, heavy metals from bilge and ballast-water.
Noise	Up to 85 decibels; 24 hours/day.
Solid Waste	Up to 6 tons/day including oil contaminated drill cuttings.

2. Permanent Service Base

The permanent service base provides essentially the same logistical support and services during the development phase as the temporary base does during the exploratory phase. However, increased drilling activity in the development phase causes the size and intensity of required support and services to increase dramatically. When a commercial find is made, the land needed for a permanent base will be purchased, or leased on a long-term basis. In some cases the location of bases established during exploration may prove convenient for the development phase and a larger area may be purchased or leased. However, if the field is distant from the temporary base, a more convenient site may be developed. Whenever possible, companies

will choose a site where some social infrastructure, particularly entertainment, is available, both in order to retain employees and reduce the likelihood of morale problems. There is no evidence to suggest that choice of a site for a permanent base indicates a likelihood for colocation of other OCS-related facilities.

Requirements and Impacts:

Land	25-50 acres on all-weather harbor: 10,000 square feet for permanent office and communications space; 1 acre/platform for helipad; remainder for warehouses and open storage.
Waterfront	200 feet of wharf/platform; 15-20 foot water depth at pier.
Water	8.2 million gallons/platform/year during development drilling. Little during production.
Fuel	54,000 barrels of fuel/platform/year during development. 19,200 barrels of fuel/platform/year during production.
Labor	50-60 jobs/platform during drilling; 50% local initially, rising to 80% local.
Wages	Approximately $1 million; average wage $17,000.
Capital Investment	$1-3 million.
Air Emissions	Hydrocarbons from fuel storage and vehicle operation.
Wastewater Contaminants	Hydrocarbons, heavy metals from bilge and **ballast** water.
Noise	Up to 85 decibels; 24 hours a day.
Solid Waste	Up to 6 tons/year during drilling.

3. Repair and Maintenance Yards

Repair and maintenance yards are not strictly a facility as such but many firms which provide repair services for vessels and equipment used in OCS oil and gas development. Repair and maintenance work is one of the best ways for local industries to capitalize on OCS development. Money spent by oil and service companies for repair and maintenance is second only to payrolls. Repair and maintenance firms need only augment their existing capabilities to meet the repair and maintenance needs of OCS activities and equipment. Accessibility to road, rail, and air transport is necessary for fast delivery of supplies and parts. Either 24-hour, seven day per week service or around the clock "call out" is required for these repair services. Skills required may include certified welders, shipfitters, electricians, mechanics, machinists, riggers, carpenters, pipefitters, sandblasters, and painters.

4. Steel Platform Fabrication Yards.

Steel platform fabrication yards are large, waterfront facilities, consisting of mostly cleared land, buildings, shops, and administrative offices set back from the waterfront. The steel platforms are constructed close to the waterfront at marginal wharfs. Industrial infrastructure -- roads, railroads, power lines, etc.- is evident. A platform yard does not have to be sited in the lease region; one yard can service several adjacent lease areas. Platforms are commonly constructed far from the lease area and towed long distances to the site. Such a facility exists in Rhode Island and could be used for work in the Baltimore Canyon.

Requirements and Impacts:

Land	200-1,000 acres on navigable waterway.
Waterfront	15-30 foot depth at pier.
Sea Access	210-350 foot (horizontal clearance and vertical).
Water	100,000 gallons/day (for 9 platforms and no steel rolling); 1.24 million gallons/day (for 2-4 platforms with steel rolling).
Labor	250-550 workers/steel platform; 80% local.
Wages	Average wage $19,000.
Capital Investment	$30-60 million (start-up only).
Wastewater Contaminants	Heavy metals, particulates
Solid Waste	Packaging materials, metal scrap, debris.
Air Emissions	Sand and metal dust from sand blasting,; hydrocarbons and organic compounds from paint evaporation; carbon monoxide, sulfur oxides, nitrogen oxides from vehicles.
Noise	80-100 decibels; 24 hours/day.

5. Concrete Platform Fabrication Yards

Concrete platforms are constructed at large waterfront yards equipped with dry docks separated from deep adjacent water by a coffer dam. The size of the fabrication yards depends upon the type, size, and number of platforms constructed annually, as well as the number and types of platform components fabricated on the site. To date, concrete platform use is largely limited to the North Sea. The single most important requirement is a large open site with immediately adjacent very deep water

(150-300 feet).
Requirements and Impacts:

Land	Minimum 50 acres/platform
Water Depth	35-50 feet at pier; 150-300 feet adjacent.
Sea Access Clearances	Over 400 feet (vertical).
Water	40,000 gallons /day at a one-platform yard; 165,000 gallons/day at peak activity.
Energy	3 megawatts; 45,000 barrels diesel fuel stocked; 11 tons gas stocked.
Labor	350-450 average; 600-1,200 peak 85-90% local.
Wages	$8.8 million annually; $19,500 average wage.
Air Emissions	Sand, cement, and metal dust; hydrocarbons and organic compounds, carbon monoxide, sulfur oxide, nitrogen oxides from vehicles and equipment.
Wastewater	Particulates, heavy metals, chemicals.
Noise	80-100 decibels, 24 hours/day.
Solid Waste	Packaging materials, metal scraps, contaminated and uncontaminated debris.

6. Steel Platform Installation Service Base

Once a steel platform jacket is completed it is towed to the offshore site on a launch barge by tugs. A 3-12 month process is required to lift, position, and fix these rigs. During this period, service base support is required. These bases are similar to temporary service bases established during exploration. They require wharfage and waterfront warehouse space, and repair and maintenance facilities for vessels and barges. One base can

support the installation of several platforms. Such a base will most likely be sited at a fabrication yard, if one exists close to the field being developed. If this is impossible, a port supporting other OCS-related service and supply activities will be sought. Supply and crew boats, as well as helicopters, are used to transport workers and supplies during installation activity. In general the same siting considerations for temporary service bases apply to platform installation service bases.

Requirements and Impacts:

Land	Approximately 5 acres of waterfront land.
Wharf Space	200 feet/4 platforms installed.
Water Depth	15-20 at pier.
Sea Access Clearance	Channel roughly 5 times width of largest barge. Vertical clearance roughly the length of the platform base.
Fuel	Diesel fuel requirements: 100,000 gallons/derrick barge/month; 150,000 gallons/tug/month.
Transportation	1 supply boat/platform; 1 crew boat/platform; 1 helicopter/platform.
Offshore Labor and Wages	Approximately 100/installation spread; 25% local; $18,000 average wage.
Onshore Labor and Wages	25 workers/installation spread; 50% local $17,000 average wage.
Environmental Impacts	Roughly the same as temporary service bases.

7. Pipelines and Landfalls

A marine pipeline system is one of the methods for transporting oil and gas from offshore production to onshore processing

facilities. A pipeline is generally safer and more dependable than a tanker or barge system and is more economical for large volumes of gas and oil. Large volumes of oil and gas at relatively short distances from shore (150 miles) will generally justify the construction of pipelines where technologically feasible. Most offshore oil and virtually all offshore gas has been brought to shore by pipelines in the U.S. The landfall site will generally be the shortest possible distance from the rig to the shore but will be influenced by the characteristics of the seabottom, the shore line, and the company's production plans.

Requirements and Impacts:

Route	Shortest distance, as modified by anchorages, active faults, shifting bottom sediments, rock outcrops, and environmentally sensitive areas.
Shore Approach	Gently sloping sand or shingle preferred, avoid shifting currents and sediments.
Landfall	50-100 foot right-of-way. 40 acres for pumping station, if required. 60 acres for terminal, if required.
Offshore Labor and Wages	250-300 jobs per lay barge spread; $15,000 average unskilled wage; $25,000 average skilled wage.
Onshore Labor and Wages	0-20 workers; 15 local to operate terminal or pumping station; $16,000 average wage.
Capital Investment	Varies - $700,000/mile for 8 inch pipe; $2 million/mile for 42 inch pipe. Shore terminal - $2.5 million.
Air Emissions	Minimal; chiefly hydrocarbons, nitrogen oxides and sulfur oxides.
Noise	90-100 decibels from compressors; 140 decibels from annual pipeline venting.

8. Pipeline Installation Service Base

During pipeline installation service base support is required. These waterfront bases are established by oil or service companies during exploration. One pipeline service base can support several installation activities. Vessels serviced include the lay barge, tug boats, cargo barges, and a jet or bury barge. As with other service bases, distance is the chief siting criterion. The pipeline installation service base is usually sited as close as possible to the installation area because of the volume of materials to be shipped. Such facilities are generally short-term. Transportation and other infrastructure requirements are similar to temporary service bases.

Requirements and Impacts:

Land	Approximately 5 acres.
Waterfront	200 foot wharf/spread; 15-20 foot depth; channel approximately 5 times width of barge.
Fuel	50,000 gallons/lay barge; 180,000 gallons/ jet barge.
Labor	Approximately 25 onshore jobs; 50% local
Wages	$17,000 average wage.
Environmental Impacts	Similar to temporary service base.

9. Pipe Coating Yards

In a pipe coating yard steel pipe is prepared for underwater use through the application of concrete and asphalt sealers to protect it and permit it to sink. A pipecoating yard is a large facility characterized by rows of stacked pipe in open storage,

and several low, sprawling structures in which the pipe is prepared and coated. In most cases pipe coating yards are sited on waterways and have rail or major highway access. A site close to the pipe laying service base is preferred. Most existing pipe coating yards are sited at or near the center of oil and gas related industrial activity.

Requirements and Impacts:

Land	100-150 acres on waterfront. 30 for portable facility; 95% storage, 5% operations.
Marginal Wharf	750 feet 20-30 foot depth at pier.
Water	3,000-15,000 gallons/day.
Energy	1 million KWH; 12-13 million cubic feet gas/year.
Labor and Wages	100-200 workers during season (March-September). $11,500 average wage.
Capital Investment	$500-$750 million.
Air Emissions	Carbon monoxide, sulfur oxides, nitrogen oxides, hydrocarbons, and particulates from processing, process machinery, leaks, and vehicle emissions.
Wastewater Contaminants	Thermal effluent, anti-fouling chemicals, a variety of contaminated process waters, BOD, COD, etc.
Noise	50 decibels at boundary.
Solid Waste	Contaminated process solids and effluent solids requiring special handling, variety of general packaging and domestic solid waste.

10. Partial Processing Facilities

Partial processing refers to the separation of oil, gas, water, and dissolved or suspended mineral impurities from the petroleum mixture pumped out of the well. Partial processing can be performed either offshore at facilities on the production platform, or onshore at separate facilities or at storage or refining facilities. Generally, natural gas is removed from the well stream at the platform and handled separately.

Requirements and Impacts:

Land	15 acres/100,000 barrels processed; 33% oil treatment and storage; 49% gas treatment and LPG storage; 9% water treatment; 9% metering and recording unit.
Waterfront	Not required.
Water	10,000 gallons/month.
Energy	1.5 million cubic feet/day gas; 400,000 KWH/month.
Labor and Wages	150 construction jobs for 15 months, 10 jobs during operation; $14,400/year average wage.
Capital Investment	$13 million
Air Emissions	Hydrocarbons, hydrogen sulfide, sulfur oxides, nitrogen oxides.
Wastewater Contaminants	Suspended solids, oil and grease, heavy metals, phenols, halogens, chromium.
Noise	80-90 decibels from pumps; 81-96 decibels from flashstacks; 81-96 decibels from treating vessels.

11. Gas Processing and Treatment Plants

A gas processing and treatment plant is designed to strip impurities and valuable liquefiable hydrocarbons, such as ethane, butane, and propane, from the raw gas stream before it enters the commercial gas transmission line. There are no standard sizes or designs for gas plants. A plant is specifically designed for the gas stream it processes and may range in throughput capacity from two million cubic feet/day to two billion cubic feet/day. Gas plants generally have a life of from 10-20 years, depending upon the availability of the natural gas supply.

Requirements and Impacts:

Land	50-75 acres.
Water	200,000 gallons/day.
Energy	5.4 million KWH/month; 360 million cubic feet/month natural gas from feedstock.
Construction Labor	500 workers for 1.5 years
Operation Labor and Wages	45-55 workers; 60% local; $15,500 average wage.
Capital Investment	$85 million
Air Emissions	Hydrogen sulfide, sulfur oxides, hydrocarbons, particulates, carbon monoxide, nitrogen oxides.
Wastewater Contaminants	Dissolved hydrocarbons, sulfuric acid, chromium, zinc, phosphates, bases, sulfite.
Noise	80-100 decibels from boilers, compressors and flarestacks; 24 hours/day.
Solid Wastes	Sludges, scale, spent dessicants, filtration media, oil absorbants.

12. Marine Terminals - Tank Farms Only

The tank farm is a portion of a system that receives, transports, temporarily stores, blends, and distributes petroleum, raw materials, petroleum products, and related substances. Tank farms may be located adjacent to refineries, marine terminals, or pipelines. The storage vessels used at tank farms may be characterized as closed storage and open storage vessels. The closed storage vessels include fixed roof tanks, pressure tanks, floating roof tanks, and conservation tanks; open storage vessels include open tanks, reservoirs, pits, and ponds.

Requirement and Impacts:

Land	Tank Farm Capacity	Land (Acres)
	1,000,000 bbls.	17
	2,000,000 bbls.	37
	3,000,000 bbls.	50
	3,500,000 bbls.	58
Freshwater	Limited (assuming no processing).	
Energy	8 million KWH/year for a tank farm with a 1 million barrel capacity (in four 250,000 barrel tanks).	
Construction Labor and wages	560 workers, 20% local; $19,600 ave. annually.	
Operation Labor and wages	10-90 workers, 70% local; $16,000 ave. annually.	
Air Emissions	Hydrocarbons from evaporation from storage tanks and transfer operations, exhaust emissions from vessels and compressors.	
Wastewater Contaminants	BOD, COD, suspended solids.	
Solid Wastes	Contaminated sludge precipitated during storage.	

13. Refineries

The modern refinery is a series of processing units designed to produce a number of petroleum products by physically or chemically altering all or part of the crude oil stream. How complex the refinery is depends upon the type of crude oil being refined and the number and kinds of products desired. Complexity generally increases

as the percentage of gasoline and other "light products increases. A typical refinery will include processing units, storage tanks, water treatment facilities, offices, machine shops, storage and warehouses, pipelines, and etc. Refinery sites are often large but with only a small percentage of total area in intensive use.

There is currently no direct correlation between the discovery of commercial quantities of offshore oil and construction of a refinery in an adjacent area, especially if the OCS area is a reasonable distance from existing refineries with expansion capability in which imported crude can be replaced by OCS crude.

Requirements and Impacts:

Land	1000-1500 acres, clear, flat, industrially zoned
Water	10.5 million gallons/ day withdrawn; 4.5 million gallons/day consumed.
Energy	1.45 million KWH/day; 19,800 bbls/day fuel oil.
Capital Investment	$8-10 million
Operating Labor and Wages (250,000 bbls/day refinery	400-900 workers, 80% local, $15,250 ave. annually
Air Emissions	Particulates, nitrogen oxides, sulfur oxides, carbon monoxide, hydrocarbons.
Wastewater Contaminants	Hydrocarbons, alkaline substances, particulates, metal fragments.
Noise	90-100 decibels uncontrolled.
Solid Wastes	Concrete, metal scraps, contaminated and uncontaminated debris.

14. Petrochemical Complexes

Petrochemicals are chemicals which are derived from petroleum sources, including natural gas, natural gas liquids from gas processing plants, and products of oil refineries. They are used as chemicals instead of fuels, and they exist as relatively pure compounds rather than as mixtures of several different compounds as are most fuels and other petroleum products.

Because of the complexity of the petrochemical industry and the variety of products and processing operations, there is no standard size nor standard combination of products produced by petrochemical plants. Some petrochemical plants may simply consist of several additional processing units added to an oil refinery at the same site. Or a petrochemical plant may be constructed as part of a huge complex, producing a large number of products and occupying sites of several hundred acres. There are, however, certain components common to most petrochemical plants. These include a process area, storage and handling facilities, utility systems, effluent treatment facilities, and service facilities.

Requirements and Impacts:

Land	200-350 acres minimum with some plants occupying sites greater than 2,000 acres.
Waterfront	Not necessary--proximity to refinery is important.
Water	Dependent upon size of plant, configuration of complex, and processing and cooling systems used--ranges from a few million gallons/day to several hundred million gallons/day.
Energy	500 million KWH/year

Labor and Wages	Construction--2,000 jobs per year for 4 years. $17,800 average wage operation--420 jobs-$21,000 average wage.
Capital Investment	$230-400 million.
Air Emissions	Particulates, hydrocarbons, carbon monoxide, nitrogen oxides, sulfur oxides.
Wastewater Contaminants	Organic compounds, phenols, heavy metals, chromate, zinc, chlorine, ammonia, and sulfides.
Noise	80-100 decibels from boilers, compressors, blowers, etc. - 24 hours/day.
Solid Wastes	Sludges, precipitates, scums, and froths.

C. Types of Facilities - Local Feasibility

The fourteen types of onshore facilities discussed in Section B can be subdivided into four categories according to their probability of desiring to locate in Hudson County and the availability of adequate suitable land recommended for their occupation. The four categories are:

A) probable and recommended

B) probable and not recommended

C) improbable and (not) recommended

D) extremely improbable and not recommended.

Each type of facility will be briefly discussed in relation to these designations, and is listed in Table 1. References will be made to the inventories in Section VI explaining in greater detail the siting restraints for these facilities.

1. Temporary Service Base

   probable and recommended--acreage available; channel depths sufficient; rail and road access adequate; wharf and warehouse space available; heliports available; minimal adverse environmental effects.

2. Permanent Service Base

   probable and recommended--same as temporary base.

3. Repair and Maintenance Yard

   probable and recommended--repair dry docks and other facilities exist and are planned which can accommodate work and crew boats; increases would occur in labor intensity at present facilities and unemployment would be decreased; no adverse environmental effects.

4. Steel Platform Installation Service Base

   improbable but recommended--steel fabrication yard

TABLE 1

TYPES OF FACILITIES-LOCAL FEASIBILITY FOR HUDSON COUNTY

PROBABLE AND RECOMMENDED	PROBABLE AND NOT RECOMMENDED	IMPROBABLE AND RECOMMENDED	IMPROBABLE AND NOT RECOMMENDED	EXTREMELY IMPROBABLE AND NOT RECOMMENDED
-Temporary Service Base -Permanent Service Base -Repair and Maintenance Yard	-Marine Terminal (Tank Farm)	-Steel Platform Installation Service Base -Pipeline Installation Service Base	-Pipe Coating Yard -Pipeline and Landfall -Steel Platform Fabrication Yard	-Concrete Platform Fabrication Yard -Partial processing Plant -Gas Processing and Treatment Plant -Refinery -Petrochemical Complex

may be distant from offshore tracts; may need local steel service base near permanent service base; requirements similar to temporary service base.

5. Pipeline Installation Service Base
   improbable but recommended--usually locates very near pipeline installation area due to volume of materials shipped; requirements similar to temporary service base.
6. Pipe Coating Yard
   improbable and not recommended--open storage is limited or banned in many Hudson communities; proximity to pipe laying area is preferred; air emissions would contribute to present Hudson problem.
7. Pipelines and Landfalls
   improbable and not recommended--major electricity transmission rights-of-way and gas pipeline systems run in unattractive alignments to oil lease tracts and probable landfalls; density of population and lack of refinery sites would limit pipeline value.
8. Steel Platform Fabrication Yard
   improbable and not recommended--acreage not available; sea access not available; existing Rhode Island or possible Virginia site could adequately handle construction; land intensive but not labor intensive.
9. Concrete Platform Fabrication Yard
   extermely improbable and not recommended--water depth adjacent to site is not available;

particulate emissions can be high; vertical clearance at Verrazano-Narrows Bridge, 229 feet, is inadequate.

10. Partial Processing Plant

extremely improbable and not recommended--similar to a very small refinery, this type of facility is prohibited in all areas except Bayonne; sites in Middlesex and Union Counties could handle this processing and are closer to the probable landfall sites and existing pipelines.

11. Gas Processing and Treatment Plant

extremely improbable and not recommended--similar to a refinery, this facility is prohibited in all areas except Bayonne; located near landfall and adjacent to gas transmission line; emission standards would be difficult to meet.

12. Refinery

extremely improbable and not recommended--prohibited in all areas except Bayonne; acreage is not available in Bayonne; public opposition in Bayonne is high; air emission standards could be prohibitive of such a facility through present air quality degradation; land intensive not labor intensive.

13. Petrochemical Complex

extremely improbable and not recommended--similar to a refinery, this type of facility is prohibited in all areas except Bayonne; air quality standards would be difficult to meet; acreage is not available; any additions to present proliferation of chemical industry facilities in Bayonne would incite extreme public opposition.

14. Marine Terminals (Tank Farms)

probable but not recommended--tank farms are prohibited in many Hudson County communities, but are permitted in Bayonne; acreage is available for expansion of present facilities but public opposition has been high in past controversies, e g Steuber; air emission standards would be difficult to meet as well as wastewater standards; storage in Middlesex and Union Counties seems more likely.

VI. INVENTORIES AND ANALYSIS

A. Transportation

I. Waterways

II. Rail Access

III. Existing and Proposed Highway Circulation Systems.

IV. Air Transport

B. Municipal Zoning Ordinances and Their Implications for Onshore Development

I. North Bergen

II. Guttenberg

III. West New York

IV. Weehawken

V. Hoboken

VI. Jersey City

VII. Bayonne

VIII. Kearny

C. Local Economy

D. Energy Facilities Rights-of-Way

E. Environmentally Sensitive Land

A. TRANSPORTATION

I. Waterways

The County of Hudson has the advantage of being situated between the Hudson River and Upper New York Bay on the east and Newark Bay, the Hackensack River, and the Passiac River on the west. All these waterways provide excellent access to pier and warehouse facilities in the County and also provide direct access to the Atlantic Ocean. As is shown in Table 2, the Hudson County waterfront is within 150 miles of all areas in the Baltimore Canyon where drilling is expected to take place. This places the County on a list of possible sites for onshore support activity.

The Ambrose Channel (see Map 2 and Table 3) provides a wide and deep entrance to New York Bay and excellent access to the Atlantic Ocean. Depth exceeds 50 feet MLW*through the Narrows (see Map 3) into the Upper New York Bay to Constable Hook Reach and reference point 2 on Map 2. From this point north, the depth in the Bay ranges from the mid 40's to over 60 feet MLW up the Hudson River along the County shoreline. This depth for any support ship to be used with offshore drilling activity. Individual channels going pierside into Bayonne, Jersey City, and elsewhere attain the required 20 feet MLW depth and exceed this in many cases. Specific sites where depth is adequate or better for onshore work and service boats are: Military Ocean Terminal, north and south sides; Port Jersey Industrial and Marine Center, south side; Greenville Yards; Caven Point, south side; Liberty Park waterfront; Morris Canal Basin; Castle Point; Bethlehem Steel Yards; and others. Other factors, however, including other aspects of transportation, may help eliminate these as possible sites for onshore facilities.

*MLW-Mean Low Water

TABLE 2

MAJOR ONSHORE AREAS BY DISTANCE (MILES) FROM SITES A, B, C, AND D IN LEASE SALE #40*

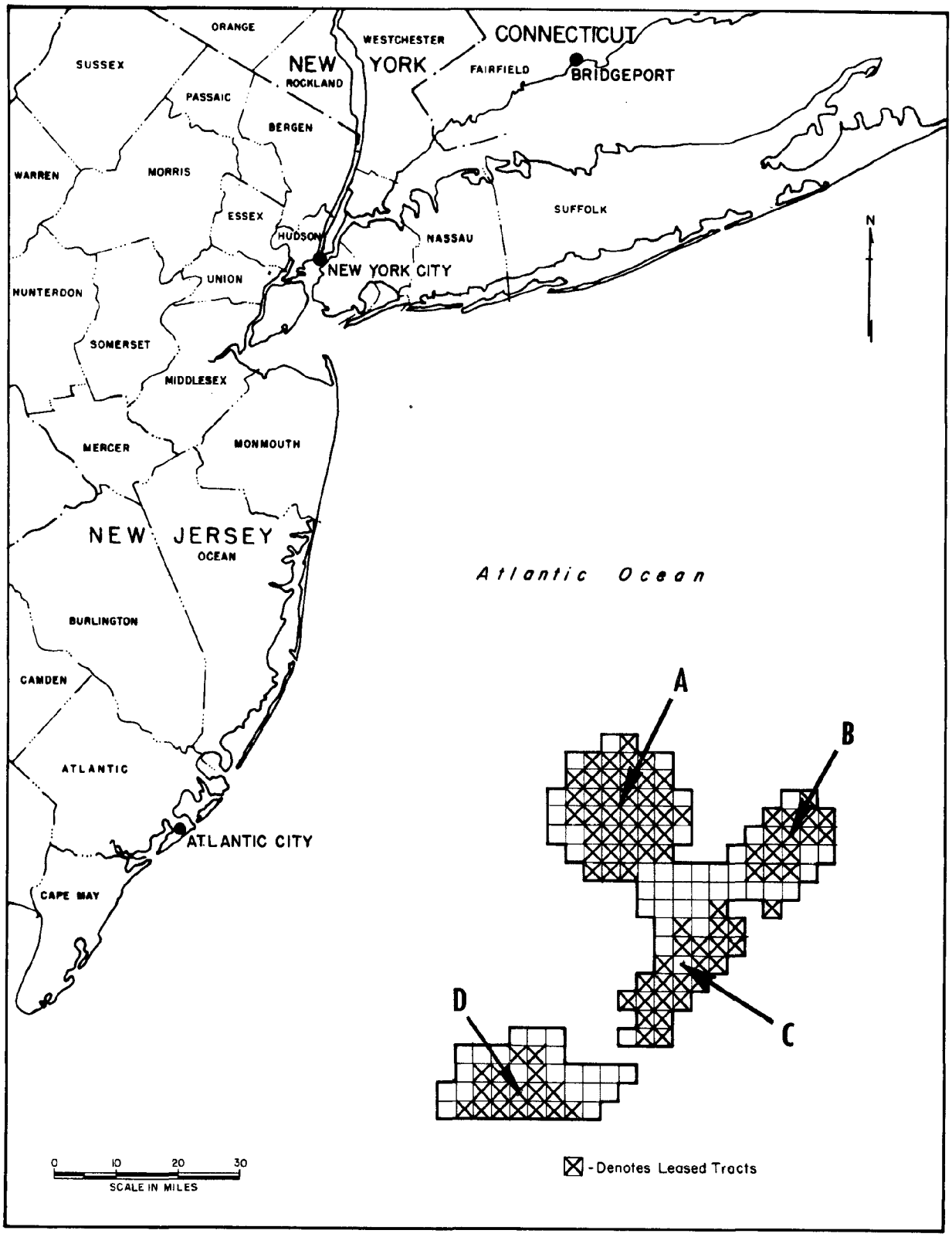
	SITE A		SITE B		SITE C		SITE D	
	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE
Atlantic City	61	68	85	96	73	82	60	68
Ambrose Channel**	79	89	97	109	103	116	111	124
Lewes Delaware	104	117	125	141	106	119	81	91

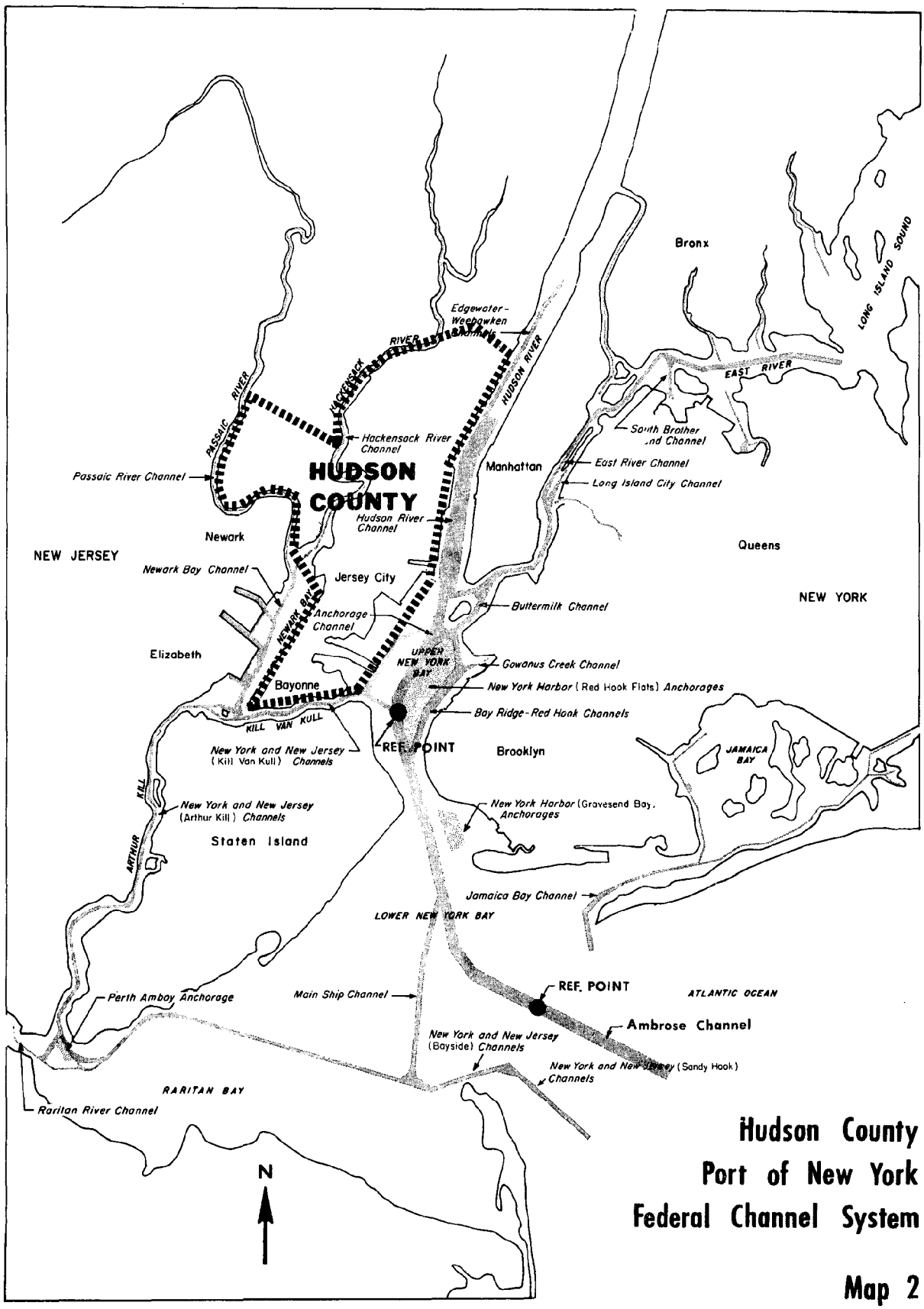
* See Figure 1 for location of Sites A, B, C, and D.

** Lower New York Bay Reference Point #1 on Map 2.

NOTE: From Reference Point #1 at the mouth of the Ambrose Channel to Reference Point #2 at the point where the Ambrose Channel meets Constable Hook Reach is 10 statute miles or 8.7 nautical miles. The waterfront of Hudson County runs approximately 14 statute miles beyond this point.

Figure 1 LEASE SALE NO. 40 - TRACTS LEASED





Hudson County
Port of New York
Federal Channel System

Map 2

TABLE 3

NAVIGATION CHANNELS

WATERWAY	LENGTH (nautical miles)	WIDTH (feet)[1]	CONTROL DEPTH (feet)[2]	LIMITS
AMBROSE CHANNEL	9.2	2,000	45	through New York Lower Bay
LOWER BAY (natural channel)	2.5	2,500	45	End of Ambrose Channel to Narrows Bridge
ANCHORAGE CHANNEL	2.6	2,000	45	Narrows Bridge to Kill Van Kull
KILL VAN KULL CHANNEL	4.0	600	33	Anchorage Channel to Newark Bay
NEWARK BAY CHANNEL	4.7	535	29	Kill Van Kull to Hackensack River Channel.
HACKENSACK RIVER CHANNEL	3.0	300	29	Newark Bay north to Pulaski Skyway.

1. Controlling Width
2. Control depths may differ from project depths due to siltation.

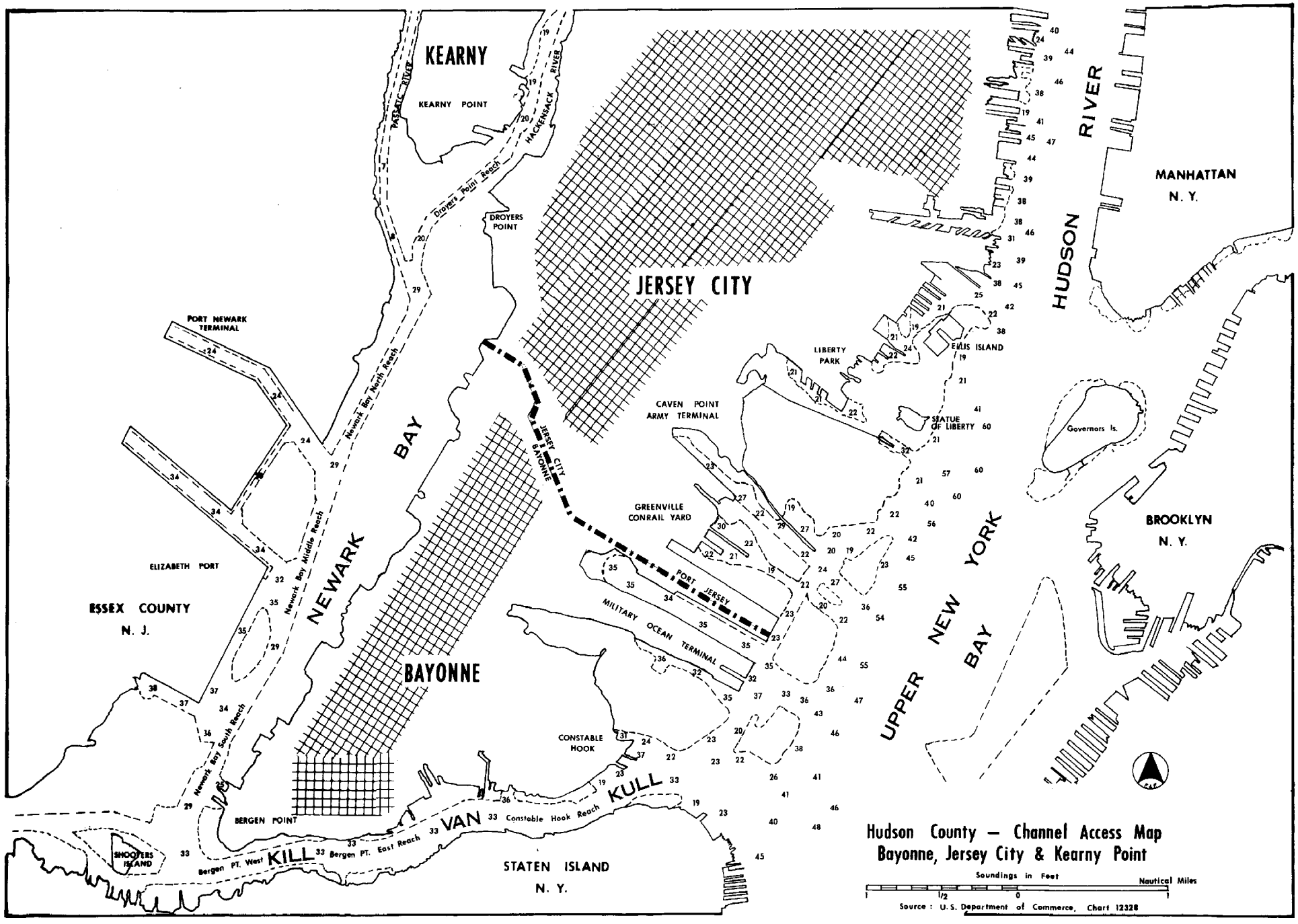
Constable Hook Reach (see Map 3) has shoaled along the edges but a depth of 33 feet MLW is available at the middle half. This would supply sufficient draft to all onshore water uses along the southern end of Bayonne from Constable Hook to Bergen Point. Many shallows exist along this waterfront outside of the channel, and only limited dockage supplying adequate depth MLW is found here. These sites are concentrated along the Constable Hook area closest to New York Bay.

Newark Bay Reach to Droyer's Point Reach at the mouth of the Hackensack River provides a depth of 29 feet MLW. However, this channel services the Elizabeth Port Authority Marine Terminal, Port Newark Terminal, and other areas on the west side of Newark Bay in Essex County. Water depths along the east side of Newark Bay adjacent to Hudson County and specifically adjacent to Bayonne and Jersey City range from only ½ to 9 feet MLW and are outside of the Bay channel. These areas adjacent to the water are primarily residential and park land and would not be suitable for onshore facility development for these and other reasons.

Water access, then, is a limiting factor which can be used to pinpoint areas of possible onshore development and areas unsuitable for such development.

II. Rail Access

Regional rail access to the Hudson County area can be considered excellent in comparison to other areas around the State of New Jersey. Part of this is due to the long history of railroad domination along the County waterfront in decades past. Even today, railroads own a large amount of land along the Northern Waterfront, much of it vacant or underutilized.



Hudson County — Channel Access Map
Bayonne, Jersey City & Kearny Point

Nevertheless, major freight lines enter Hudson County from the south and west in a greater proportion than any other area in the State. This is also due in part to the transferral of freight from these rail lines to harbor carfloatage services which transport products to New York. This regional network can be seen in Map 4 which shows the rail access potentials of Hudson County. Though not shown in this report, the New Jersey Department of Transportation publishes a Railroad Service Map which better shows the regional relationship associated with this area and rail service.

According to this DOT map issued in 1976, there are 7 passenger and freight lines entering the Hudson County area, and 4 exclusive freight lines entering this area. Many of these lines or spurs therefrom terminate at warehousing and industrial areas existing at present along the waterfront or terminate at freight and passenger terminals in Jersey City, Bayonne or Hoboken.

Since the advent of Con Rail and the consolidation of many of the rail lines into a single system, much abandoned track along the waterfront has been taken up freeing land from railroad use. Some of this land is presently for sale and other parcels are for lease. In telephone conversations with the Con Rail office in Hoboken, no definite information was obtained as to which parcels and how much land was actually on the market. One of the reasons given for this lack of availability of information was the bureaucratic process now existant within Con Rail as a government subsidized agency. This fact has the potential of limiting the sale or lease of railroad lands to oil companies to a minimum due to the immediate need of land for support bases

once oil and gas are discovered in sufficient quantities to warrant them. Oil companies cannot afford to wait a year or more for authorization to begin onshore operations on lands owned by the railroad and would, therefore, seek other sites which could be more expeditiously acquired.

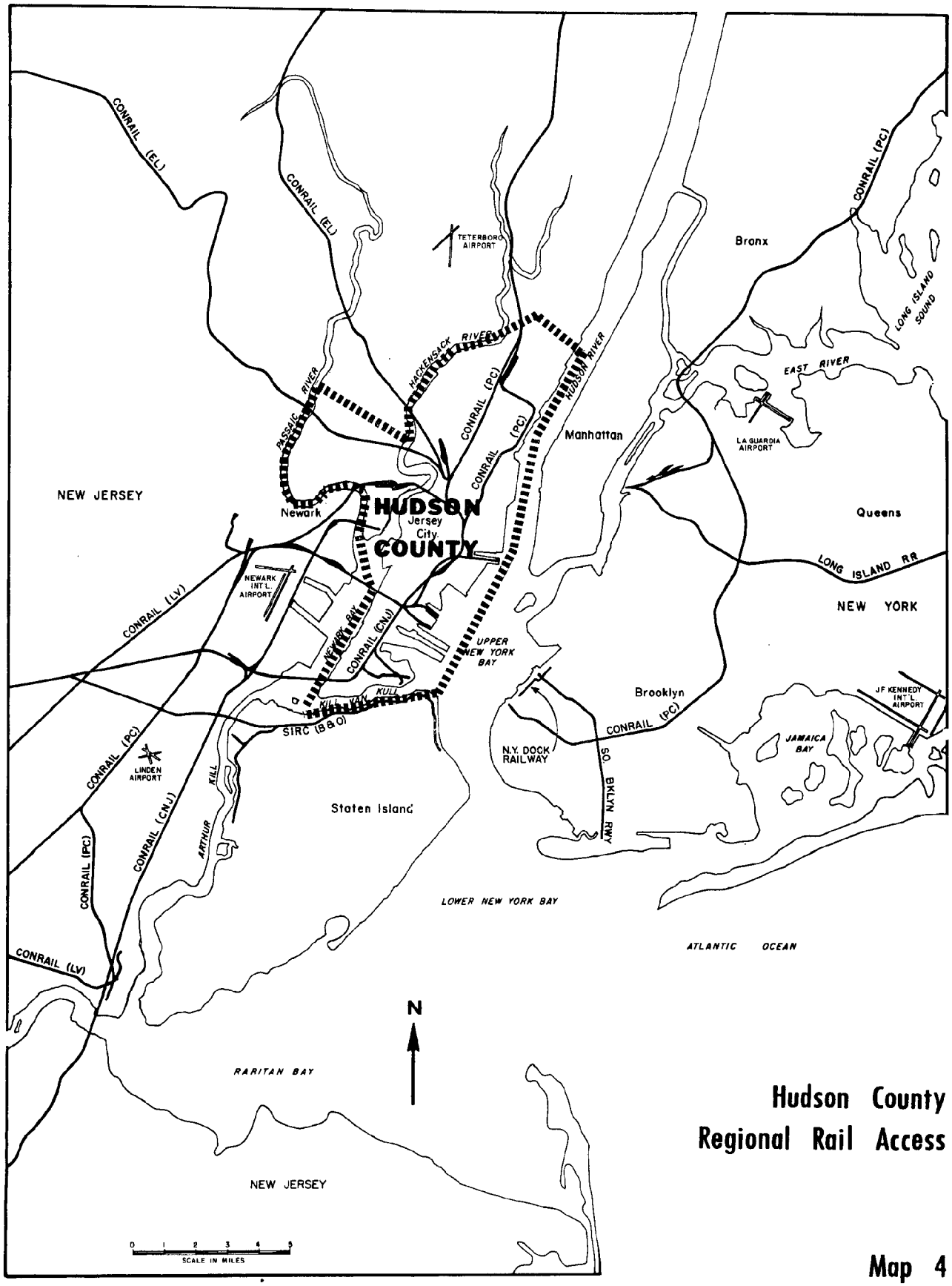
Rail access is an important feature of onshore support facilities, and Hudson County has the historical advantage to provide this necessary service without the expense and inconvenience of freight transfer to truck and the long distance hauling involved in this process.

III. Existing and Proposed Highway Circulation Systems

"Hudson County's proximity to New York City forces upon it a role that its small size and high urban density make difficult to fulfill. As a vehicular and rail corridor into the largest metropolitan area in the nation, Hudson County must bear a volume of freight and commuting traffic that makes it the most congested County in the State. With two of the three Hudson River vehicular crossings that connect New Jersey with New York City, 40 percent of all the auto and truck traffic going into Manhattan on an average workday travels through Hudson."[5] This regional transportation network can be seen in Map 5.

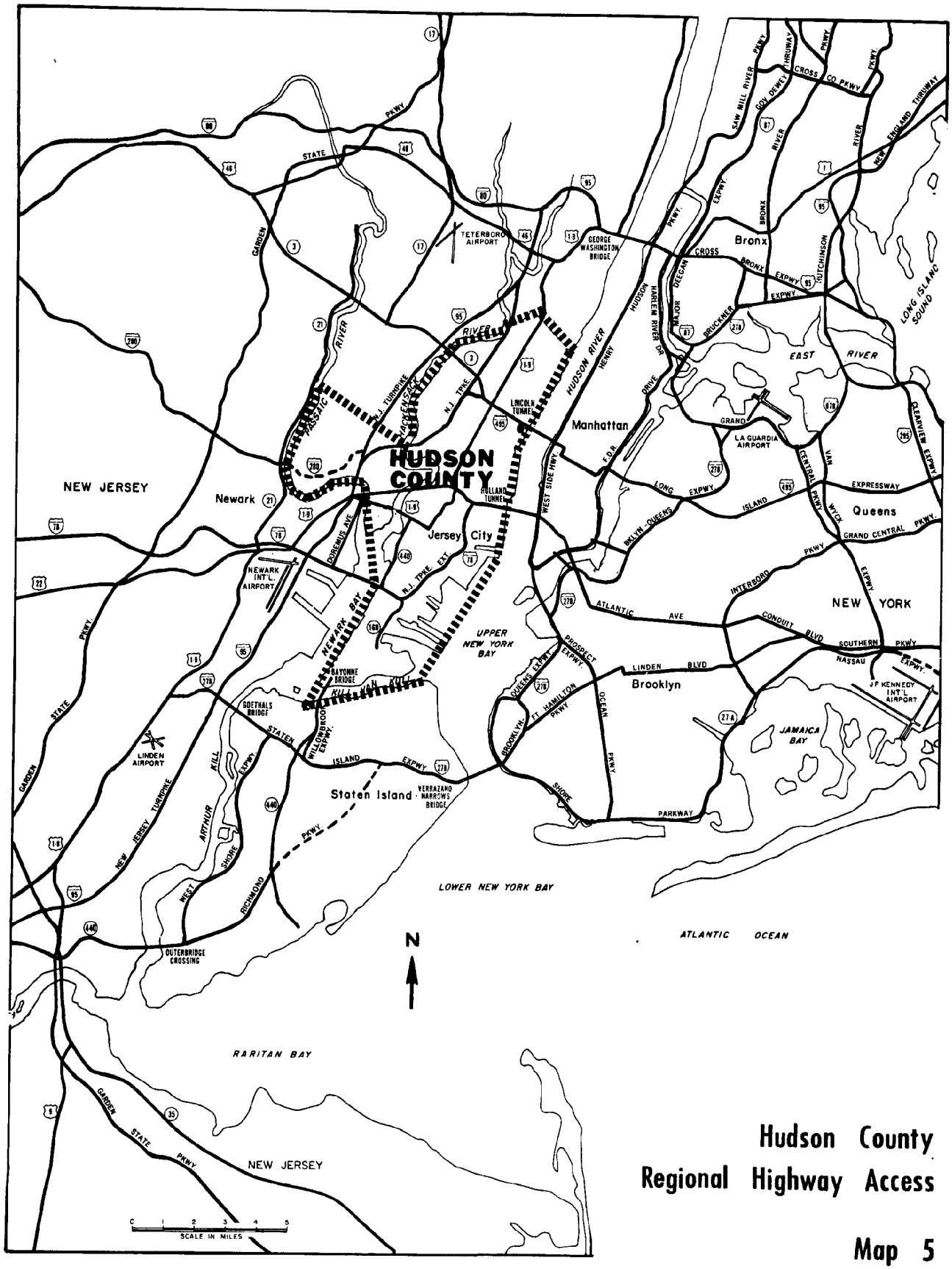
Within the County existing traffic problems increase as the number of automobile registrations rise. In 1970 Hudson had 189,000 passenger car registrations. By 1980 the Tri-State Regional Planning Commission estimates 236,000 auto registrations. The 1970 figure for commercial and truck registrations was 28,575 which is substantially higher than the Regional Planning Commission

5. Hudson County Land Use Study and Plan. December, 1974. pg.73.



Hudson County Regional Rail Access

Map 4



Hudson County Regional Highway Access

Map 5

had previously anticipated, and continued growth is expected. These statistics point a rather dismal picture for the future of Hudson County's existing transportation network.

Limited access highways, such as the New Jersey Turnpike, Routes 3 and 1 & 9, carry the bulk of the through traffic and a major portion of heavy trucking traffic. Local streets, such as Kennedy Boulevard, Garfield Avenue, and Avenue E in Bayonne, handle most of the intracounty flow and local truck deliveries. Route 3 is east-west oriented while the others are north-south as can be seen in Map 6.

Access to the waterfront areas can generally be described as fair to poor. The only portion with adequate highspeed access if any development is to occur is that portion of lower Jersey City served by the New Jersey Turnpike. All other areas, Bayonne, northern Jersey City, Hoboken, Weehawken, Union City, West New York, and North Bergen are serviced only by local roads, many of which are narrow and winding. Insufficient road access to the waterfront is its major transportation weakness as water and rail access are very good as has been discussed earlier.

Map 7 shows proposed improvements to the road system and subway system as planned for the County. The road improvements are of most importance to onshore development. The proposed routes 169 and 440 would aid north-south passenger and commercial traffic oriented generally to intracounty movement. Route 169 has been approved for Bayonne but only as far north as the Bayonne City line. The North Extension, running parallel to the New Jersey Turnpike and to serve the waterfront, has not been approved and has little future since the proposed alignment would cross through recently organized Liberty State Park.

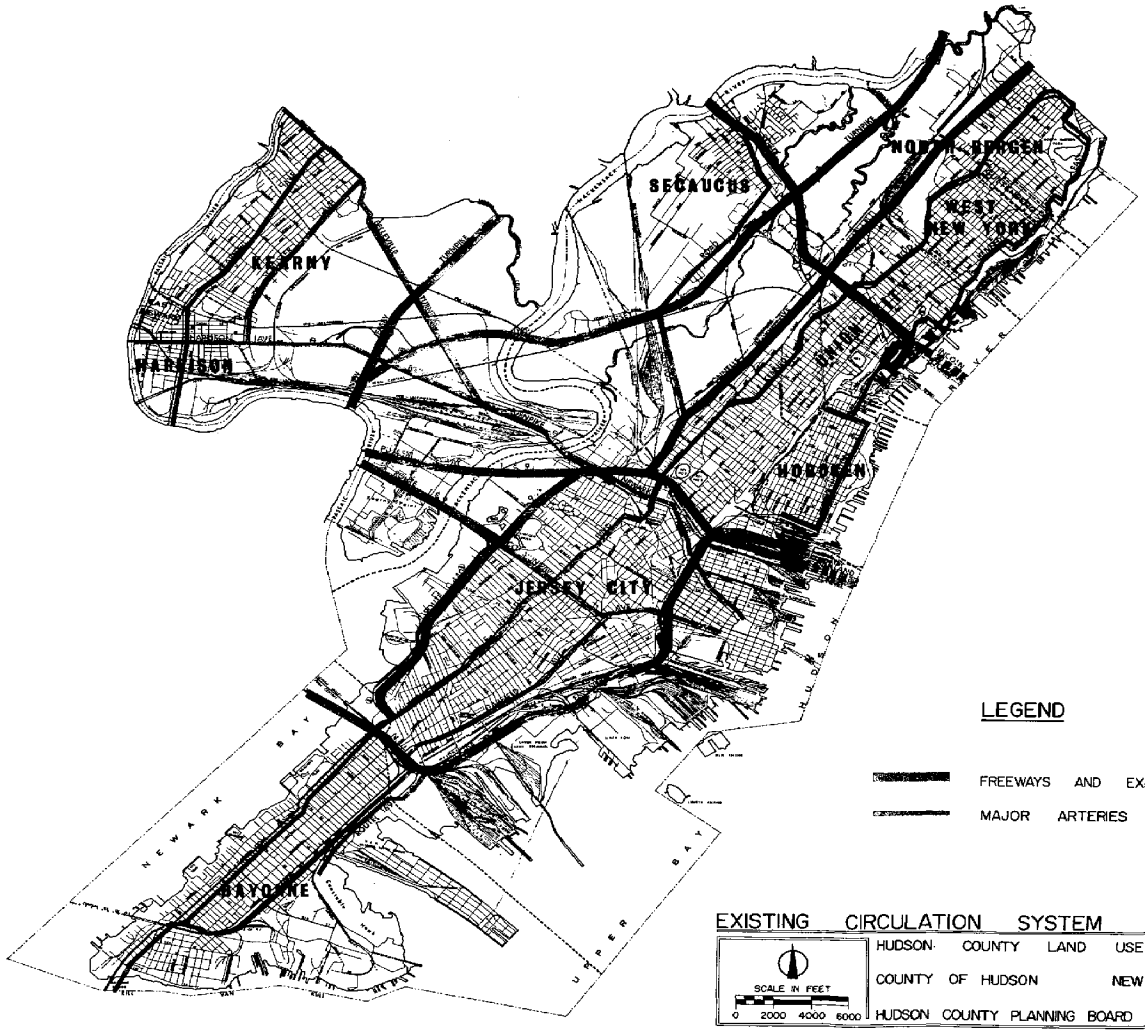
Little hope has been expressed for the proposed Route 85 to the George Washington Bridge which would help service the northern part of the Hudson waterfront. A major obstacle of this proposal is the waterfront access it would eliminate by consuming a major portion of the land available along the Hudson River. Presently, much of this land is owned by the railroads and stands vacant or underutilized.

Various proposals for the Meadowlands Parkway have been advanced but none of them would have a major effect on waterfront accessibility. In total, then, no major proposals for the Hudson County area in existence at present will alleviate the access problems the waterfront experiences.

IV. Air Transport

Hudson County is centrally located between the three major airports servicing the New York-New Jersey metropolitan area. These are Newark International Airport, Kennedy International Airport, and LaGuardia International Airport. These three airports serve national and international flights and are accessible to Hudson County in one hour or less. Smaller airports including Linden Airport and Teterboro Airport serve smaller aircraft and helicopters on mostly metropolitan and intermetropolitan flights along the eastern seaboard.

An OCS Air Transport Questionnaire was sent to five major metropolitan area helicopter firms seeking information related to present helicopter capabilities in this area and interest in possible OCS expansion. (See Appendix B) Not all questionnaires were returned. From those returned (3),an optimistic situation presently exists. Two of the three companies indicated they possessed 5 turbine

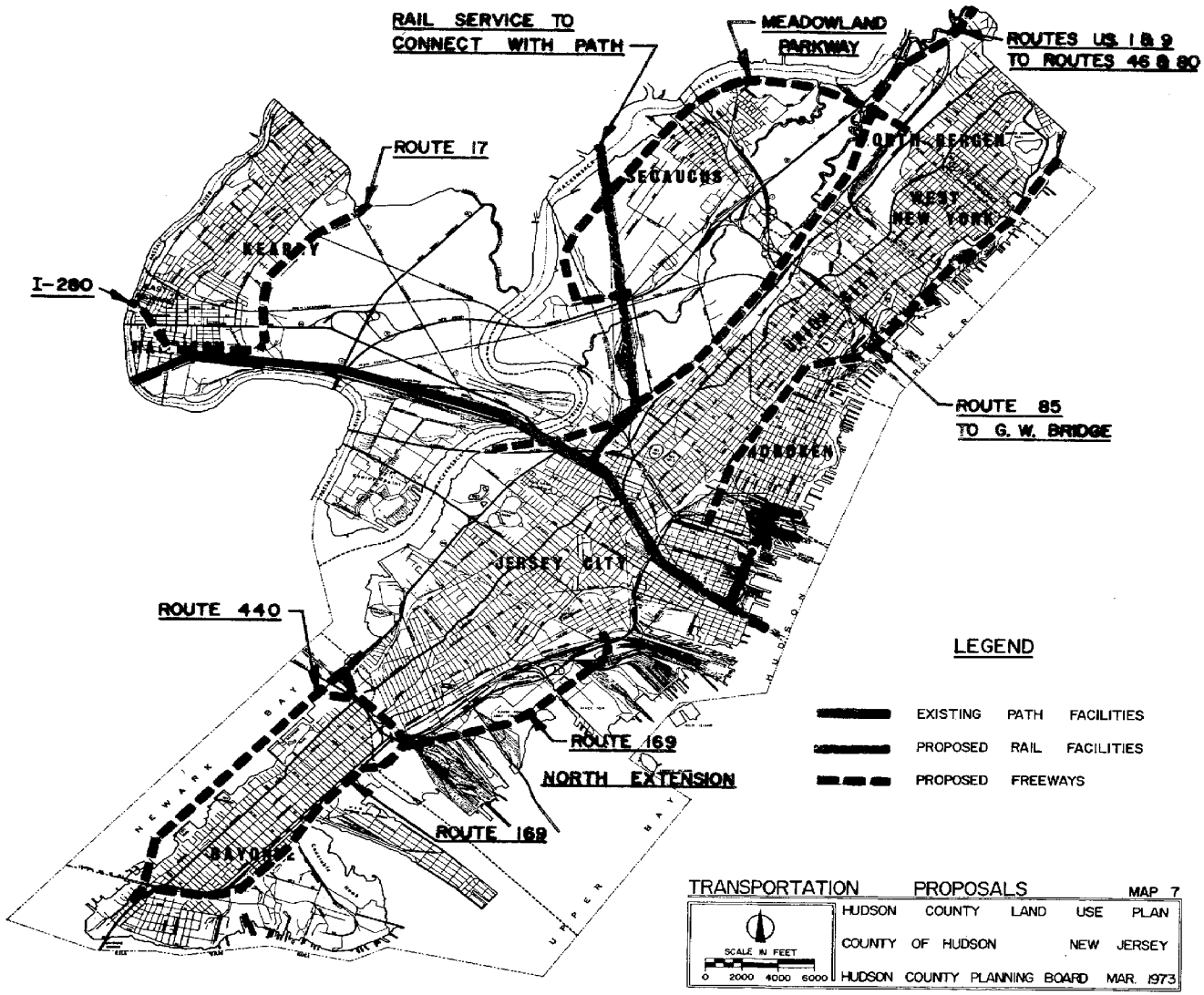


EXISTING CIRCULATION SYSTEM MAP 6

HUDSON COUNTY LAND USE PLAN

COUNTY OF HUDSON NEW JERSEY

HUDSON COUNTY PLANNING BOARD MAR. 1973



TRANSPORTATION PROPOSALS MAP 7

HUDSON COUNTY LAND USE PLAN

COUNTY OF HUDSON NEW JERSEY

HUDSON COUNTY PLANNING BOARD MAR. 1973

PROPOSALS
HUDSON
COUNTY OF HUDSON
COUNTY PLANNING BD
TRANSP

powered helicopters at present which they would make available for long term offshore leasing. All three firms indicated they would be willing to acquire new equipment if necessary to meet the needs of future drilling, and all indicated that they would not anticipate any air traffic problems at their present landing sites.

Those sites indicated as major heliport areas were Teterboro Airport, Linden Airport, and Spring Valley, New York at which alone 10 helipads are located. One company indicated that it would be willing to land at any approved heliport in the New York metropolitan area if the oil companies so desired.

These positive features are enhanced by the fact that Jersey City has several areas zoned which permit helipads to be built in conjunction with industrial development adjacent to the waterfront. However, Newark International Airport, the closest major airport to Hudson County and operated by the Port Authority, has no public heliport facilities and none are foreseen in the near future. This, therefore, limits the landing sites to smaller airports in the area or to those areas which could be constructed in conjunction with other development along the waterfront.

Three other major heliports exist in the metropolitan area and are open to public use. The Hudson River Heliport or Midtown Heliport is located at W. 30th Street in New York City, and the Pier 6 Wall Street Heliport is located on the East River near Wall Street in New York City. Both of these are operated by the Port Authority. The third heliport is run by a private firm, Island Helicopter, Incorporated, for public use and is located at E. 24th Street and the East River Drive in New York City.

It can, therefore, be concluded that a favorable situation exists in and around Hudson County in terms of heliport facilities

B. HUDSON COUNTY MUNICIPAL ZONING ORDINANCES AND THEIR IMPLICATIONS FOR ONSHORE DEVELOPMENT.

Hudson County has seven municipalities along the Hudson River and one with access to Newark Bay which could accommodate onshore uses along their waterfronts. Only five of these possible eight municipalities seem to be likely areas for onshore support bases or other facilities related to offshore drilling due to constraining factors such as land availability, proximity to the Baltimore Canyon in relation to other sites, and other reasons.

Each municipality along these water areas and their zoning ordinances have been reviewed and restrictions and permitted uses related to OCS activity will be highlighted in this section. Indications as to the suitability of these areas for onshore development will be given in relation to these zoning uses. Preliminary analysis indicates that Weehawken, Hoboken, Jersey City, Bayonne, and Kearny have the greatest potential for OCS development and among these, Jersey City and Bayonne are the most appropriate sites for such development.

I. North Bergen

Beginning in Hudson County's most northerly section, North Bergen lies the greatest distance of all Hudson communities from the mouth of New York Bay. This area would require the greatest amount of navigation of the Bay and Hudson River for port facilities. The land adjacent to the Hudson River is serviced by River Road, a two lane facility, and is zoned M-3. Principal uses in this zone are similar to M-1 and include warehousing and storage,

truck terminals, lumber, wood and other storage yards, but not salvage yards and like facilities. M-3 specifically also permits marinas and boat clubs.

In North Bergen, immediately adjacent to the waterfront M-3 designation is the M-1 district, light industrial as described previously. However, this M-1 area abuts R-2 and R-1 areas which are primarily residential and parkland. This M-1 area is also subject to sharp changes in elevation due to the nature of geologic formations associated with the Palisades. Total available area along the river in North Bergen in M-3 and M-1 districts would be insufficient and of such configurations to eliminate the possibility of onshore facilities locating here.

Other limiting factors include the fact that any outdoor storage areas may not abut any R district such as exist adjacent to the M-1 district in North Bergen and no highly inflammable or explosive liquids, solids, or gases may be stored in bulk above ground in this area.

Of importance, also, is the construction on filled land of the Palisades General Hospital on the waterfront in North Bergen and the convenient use such a facility offers to offshore facilities in cases of emergency. This project is expected to be completed by mid-1978.

II. Guttenberg

Guttenberg is the smallest of all Hudson County communities and has a minimal amount of waterfront property. A good part of this is taken up by Capital City Products, a food oil storage and processing company. Guttenberg's waterfront is also served by

River Road and is also subject to the changing elevations due to geologic formations close to the river. Insufficient acreage exists there to support OCS facilities. Residential developments also abut this small industrial area on the east at higher elevations overlooking the Hudson River. This area would not be suitable for onshore activities.

III. West New York

West New York is the third most northerly city in Hudson County and possesses a waterfront that suffers from neglect and abandonment. The railroads dominated a great part of West New York's waterfront for many years and today still operate storage yards in this area. Unfortunately, many areas along the waterfront exist as marginal industrial sites or abandoned rail yards. The northern third of this community's waterfront area is the site of minimal operational Con Rail lines which transport aggregate, steel beams and piping, and other industrial materials to a few major construction companies which lease their land from Con Rail. Much of the land exists as open storage for these construction materials as well as heavy equipment including cranes, bulldozers, and tractor trailers. Much of the activity in this area is dependent on the rail lines that still operate here, though infrequently. In this area River Road becomes a single lane with insufficient access, pot holes, flooding, and debris. The area is underutilized but has no useable dock space with adequate depth.

The middle third of West New York's waterfront is littered with rotting, burned out piers, shallow waters, and abandoned rail cars and debris. These piers will be most certainly cleared

by the newly passed waterfront redevelopment bond issue in the future years. If the unused rail lines were to be taken up and the abandoned rail cars removed, sufficient area might exist with a rail siding to accommodate onshore bases. However, piers would need to be constructed and channels dredged to accommodate the 20 foot drafts necessary for OCS work boats and crew boats.

The fact that much or all of this land is railroad owned (Con Rail) and is subject to the unwieldy governmental process that now surrounds all of Con Rail's ventures as was indicated by Hoboken Con Rail officials, makes this site less desirable. Swift action and short term lease arrangements will characterize interests in areas such as this. Any delay due to confusion among Con Rail offices and procedures can only delay and discourage oil companies from choosing any such sites.

The lower third of the West New York waterfront resembles the middle third except that at one time there were thriving factories in this area. Their abandoned brick shells still exist in deteriorating condtion strewn about like discarded relics. They dominate the area and confound any attempt at finding large open spaces for development. Rotting, burned out piers abound.

The western portions of these riverfront areas are also guarded by quick changes in elevation which prohibit any access to these areas from the street system that serves West New York in general. Roadway and waterway access as well as land ownership would seem to be major barriers to OCS development in this area and to other types of industrial development there as well.

The waterfront area was formerly an industrial zone, but as of July 1974 it was zoned a planned unit development area. This area only permits industrial uses compatible with residential development and limits industrial development in conjunction with a PUD plan to 20 percent of the total PUD site. Under present zoning then as a PUD, I would discount the possibility of locating any OCS activity in the Town of West New York.

IV. Weehawken

Weehawken is located directly across the Hudson River from mid-town Manhattan and is the western link to the Lincoln Tunnel. Its entire waterfront area was at one time zoned heavy industrial but has recently been altered to include industrial parks, office parks, outdoor recreation zones, and planned unit developments. Unfortunately, none of these designations has been used effectively to this date and the type of heavy industry previously in existence still dominates this waterfront.

The following OCS related prohibitions or conditions exist in areas along Weehawken's Waterfront:

1) Heavy Industrial Zone: no petroleum refining may take place in this area.

2) Industrial Park Zone: non-nuisance industries compatible with the aim of preserving the beauty of the Palisades and in improving the condition of the waterfront are encouraged.

   a) no tank storage (tank farms) is permitted.

   b) no outdoor storage incidental to major use is permitted.

c) land and water transport passenger terminals are permitted.

Performance standards such as noise, glare, air pollution, fire hazards, and others are given.

3) Office Park Zone: no outdoor storage incidental to major use is permitted, and land and water transport passenger stations are permitted.

4) Outdoor Recreation Zone: water transport passenger stations are permitted.

All performance standards for the industrial park zone apply to the Office Park and Outdoor Recreation zones.

The character of the Weehawken Waterfront at present is not totally unlike that of West New York, but has substantially greater numbers of revenue producing uses. There are abandoned and burned piers as well as vacant warehousing, but there are also storage yards and dry dock facilities. The former is evidenced in vacant warehousing buildings in repairable condition with rail access such as at the Empire Van Lines - Foreign Air Fowarders - Household Shipping Company located on the northern Weehawken waterfront. The latter is evidenced by a paved auto storage yard and the Union Dry Dock Company also in the north. This northern area is also railroad dominated and serves to some extent as a tank car storage area. Union Dry Dock Company operates on a 10 acre site leased from Con Rail and is interested in expanding their present operations to accommodate larger offshore vessels. Their present facilities can handle ships up to 250 feet in length.

Sea Train trailor storage and dock is located south of the Lincoln Tunnel along with the Hudson Tank Terminal, a vegetable oil storage site which is approximately 10 acres. The lower Weehawken waterfront immediately north of Weehawken Cove is dominated by more Sea Train storage for containerized shipping.

River Road through this area permits access only to the Lincoln Tunnel crossing. There is no road access to the southern end of Weehawken's waterfront. There is abundant operating rail access, however.

V. Hoboken

Hoboken's waterfront is dominated by warehousing and storage facilities, a major shipbuilding and repair firm, and Stevens Institute of Technology. The zoning districts which incorporate these uses are M-1, light industrial; M-2, general industrial; M-3, special industrial; and ER-2, river campus educational research.

In light industrial areas, all uses including storage must be conducted entirely within a fully enclosed building and cannot constitute a fire or explosion hazard. In this district the storage, processing, or manufacture of chemical products is permitted by special use permit only. The entire M-1 area is presently used by the railroad for passenger car storage and repair.

The uses of the M-2 area are the same as the M-1, but permits open storage areas by special permit as well. Sea-Train operates a major storage yard in this area and Bethlehem

Steel operates their shipbuilding yard here.

South of Bethlehem Steel is a site recently acquired by Union Dry Dock Company where they wish to place a new larger dry dock to handle offshore ship repair. This site is small for such an operation and has no rail facilities and only two lane road access. It is also adjacent to the Stevens campus, but at a much lower elevation due to the Palisades phenomenon. It is blocked from the view of the campus by trees and the drop in elevation. This site would seem to be marginal for such an operation. Another small M-2 area exists on the south side of Stevens campus now occupied by an aggregate warehouse and barge facility and by an abandoned warehouse and piers. This site is too small for onshore use.

The ER-2 zone is immediately east of the Stevens campus and is limited to research and college related activities only. In the past the school has docked the SS Stevens at this site and was using it as a floating dormitory.

The final area M-3 is dominated by the Hoboken Port Authority Piers and Warehouses which are presently underutilized due to the great surge in containerization in the New York Harbor. These piers are deep draft areas and could accommodate storage of bulk supplies for offshore needs. The piers and warehouses are in operable condition and could be readied for occupancy in a short time depending upon negotiations with the Port of Authority. The principal use in this M-3 area is shipping terminal facilities. Open storage is allowed by special permit only.

VI. Jersey City

The waterfront area of Jersey City is primarily zoned I-2 and I-3, intensive industrial and industrial park. A major portion of their waterfront is also now taken up by Liberty State Park and includes the restoration of the Jersey City train terminal. Many environmental groups have been asking the City and State to preserve this area, some 800 acres, for exclusive park and recreational use. The State wants the area to be self sufficient in terms of revenues and expenses.

Another small portion of the waterfront area around Exchange Place is zoned C-4, Finance and Business District, and would not be suitable for onshore facilities. OCS related permitted uses include only marinas and marina related fueling and repairs, and also helicopter landing pads located within 200 feet of the existing bulkhead.

The I-2 intensive industrial area is located north of the Exchange Place C-4 district and north of Liberty State Park. OCS related permitted uses include terminal facilities for rail, truck, and water borne transportation, marinas and the construction and repair of marine vessels, and private helicopter landing pads. Related activities prohibited in this area are tank farms and the processing of petroleum.

Presently, this area is occupied by Con Rail yards with limited road access, a number of large cold storage and warehouse operations, including abandoned and deteriorating ones, and a large soap and perfume company plant. Available space along this waterfront area is minimal unless presently used railroad property could be acquired.

Jersey City has created a waterfront plan[6] for this area which includes low and high rise residential development, commercial and industrial development, and buffer zones along portions of the waterfront. This proposal would require major changes in the present zoning and would not free substantial amounts of land for onshore oil development. The bulk of these properties is owned by various railroad companies and by Con Rail. The state has also reclassified some of this land into non-railroad use. The prospects for onshore development here are not good.

The Liberty State Park site occupies the Waterfront from the Tide Water Basin to the southern end of the Liberty Industrial Park area.

At present, the Liberty State Park Study and Planning Commission is reviewing a plan submitted by the New Jersey Department of Environmental Protection for uses appropriate in this area. The DEP has suggested that the park site should be maintained in its natural state including passive and active marine recreational uses. A major aspect of the DEP plan is a landscaped public walkway or harbor walk to stretch throughout various areas of the park. It is now up to the Park Study and Planning Commission to review the plan by DEP and to revise or accept its recommendations which they will then submit to the governor. It is the intention of the Hudson County Office of Planning to monitor this process and to review the decisions this Committee and the Governor's Office make in relation to the appropriate uses for

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6. Jersey City Division of Planning, Jersey City, 1977: Northern Waterfront Plan, June 1977.

the Liberty State Park area. Therefore, no recommendations are being made at this time for the Liberty State Park area.

South of Liberty Park lies a large area zoned I-3, Industrial Parks. Located within this area are Caven Point Army Terminal, the Greenville Railroad Yards, and Port Jersey Industrial and Marine Center. Permitted uses in this zone are similar to those in I-2 and include terminal facilities for rail, truck, and waterborne transportation, marinas and the construction and repair of marine vessels, and private helicopter landing pads. Those uses prohibited are tank farms and the processing of petroleum.

A nonconforming use, a petroleum tank farm, exists in this area, Metropolitan Petroleum Tankport. Metropolitan handles #'s 2, 4, and 6 fuel oils on a 26.7 acre site south of the Liberty Industrial Park. All products are barged into the site and stored in 23 tanks. Water depth at 700 feet of berthing area is 27 feet MHW. Metropolitan employs 81 persons in winter and 60 in summer. Total capacity of all fuels is approximately 1,350,000 barrels or 56,700,000 gallons.[7]

Caven Point Army Terminal is federal land and is still in operation. Many of the buildings or barracks are deserted and deteriorating. Vehicle storage is a major use of the present upland site with other uses taking place at the waterfront.

The Greenville yards area is still a major rail operation but has vacant sites along the waterfront which could act as onshore bases. Presently, crane equipped piers with deep water access are available along the waterfront here. Scrap storage and scrap operations including a stevadore company and barge facilities on the

7. Information supplied by Metropolitan Petroleum Co., New York, Nov. 1977.

waterfront are operating in this area. The Port Authority of New York and New Jersey has pinpointed the Greenville Yards as a possible site for onshore development in their study of the Port of New York.[8] This site will be explored further in later sections.

The final area within this I-3 zone is the Port Jersey Industrial Center, a large containerized storage and handling area devoted to shipping, warehousing, and open storage. Sufficient area exists here for the possible siting of onshore facilities of many types. In the recent past the Steuber and Metropolitan companies have proposed development in this area of tank farms and marine terminals. Steuber proposed the construction of 242 storage tanks in this area while Metropolitan proposed a much smaller facility. Both of these proposals were defeated in 1976 only after much public controversy and continued public opposition to such facilities. The site itself was of concern to the public but the type of facility to locate there was the major stumbling block throughout the controversy.

The site is zoned industrial and would provide the infrastructure and water access necessary for onshore facilities. Its recent past history, however, renders this site somewhat questionable but still open for the onshore types of development recommended in this report.

VII. Bayonne

A major portion of Bayonne's waterfront is zoned heavy industrial. This is particularly true of Bayonne's waterfront along the Hudson River and the Kill Van Kull. This heavy industrial designation does not contain the prohibition of any OCS related

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8. The Port Authority of New York and New Jersey, Support Bases for Offshore Drilling: The Port of New York Potential, May,1977.

activities as do the zoning ordinances of other Hudson County municipalities. For this reason many large tank farms have located in Bayonne and refining has in the past taken place here also. Exxon and Texaco are the major operators in this area.

Exxon and Texaco occupy two large sites where possible expansion could take place. Presently, these sites, one located at Constable Hook and the other at Bergen Point, are primarily tank farm operations.

The Exxon Bayonne Plant occupies approximately 295 acres and employs approximately 300 persons. They store, as part of their terminalling function, lubricating oils, solvents, heating oil, diesel fuel, bunker fuel, intermediate feed stock oils, wax and asphalt. These products are transported to the Bayonne Plant by tanker, barge, pipeline, and tank car. The Bayonne Plant also acts as a storage and transfer point for petroleum products piped to the Linden Bayway refinery which cannot be directly tankered into the Linden port due to pier and water depth deficiencies.

The Bayonne Plant is serviced by 2 tanker piers and 1 barge pier with the following berth lengths and water depths:

Pier 1 (tankers)	-	679 feet
Pier 6 (tankers and barges)	-	771 feet
Pier 7 (barges)	-	Berths 1-4 850 feet Berths 5 & 6 585 feet
Pier 1: East Side	-	33 feet MLW
West Side	-	not used
Pier 6: South Side	-	36 feet MLW
North Side	-	38 feet MLW
Pier 7: Berths 1-3	-	18 feet MLW
Berths 4-6	-	24 feet MLW[9]

9. Most of this information was supplied by Exxon Bayonne Plant-Refining Department, Nov.,1977.

Another important and available site along the upper New York Bay, that of the U.S. Military Ocean Terminal in Bayonne, was suggested for consideration by Assistant City Engineer, Edward Gottko. Conversations with him reveal the willingness of the Office of the Assistant Secretary of Defense to release 42 acres of warehouse, berthage, and open storage space for outlease " in support of a renewed Bayonne industrial development program. " This information was confirmed by Mr. John E. Lynch, Director of Program Operations for the Assistant Secretary of Defense in a letter which indicated a forthcoming report in March to the City of Bayonne on this availability.

The U.S. Military Ocean Terminal is located less than a mile from the Jersey City extension of the New Jersey Turnpike, is zoned for industrial use which could accomodate offshore service operations, has better than adequate water depth for such operations averaging 34 feet MLW at dockside, and is one of several sites of interest for development by Bayonne City officials.

The Newark Bay side of Bayonne is zoned residential and park land uses. It is also the site of the proposed extension of Route 440 which is shown on Map 7. The channel which serves Newark Bay hugs the eastern side of the Bay and services Port Newark and Port Elizabeth. The channel depths along the Bayonne shore are less than 10 feet in all areas. For these reasons as well as the residential nature of this area, no onshore facilities are likely to locate in this area and none are recommended.

VIII. Kearny

The Town of Kearny and specifically the area of Kearny known as Kearny Point is surrounded by the Hackensack River, the Passaic River, and Newark Bay. This entire area is zoned M-2 or General Industrial. Those uses prohitited in this M-2 area are the same as in the M-1 or Restricted Manufacturing. Those prohibited uses related to OCS activity are steel fabricating shops, gas storage in bulk, oil storage in quantities exceeding 100 gallons, except where the oil is consumed on the premises, petroleum refining, and tank farms.

The present Kearny Point waterfront is characterized by large crane operated scrap yards and stevadoring companies. Port Kearny, also located in this area, has been designated in the Port Authority study of New York as a possible site for onshore OCS activity.

Port Kearny presently is being offered by the River Terminal Development Company for buildings and marine and dock facilities. Construction can take place on 100,000 to 1,000,000 sq. ft. with suitable water access. Utilities are presently sufficient in the area to handle the needs of onshore activities. Highway access to the area via Route 1 & 9 is direct, but rail access is indirect and would require short transshipment by truck.

Also located in Kearny at the South Kearny Terminal is Columbia Terminals, Inc. This site is the home of 20 chemical and petroleum companies including Sun Oil, Exxon Chemical Co., E.I.DuPont Company, Metro Oil, and others.

C. Local Economy Since the Completion of the Economic Base Study - October 1974 and 1976 Update.**

The latest data presented in the Economic Base Study was employment data for February, 1973. Since then, the downward trend which was noted in that study accelerated as noted in the 1976 update. This trend, however, has begun to reverse itself as is evident in the latest figures presented here which show a leveling of the unemployment rate, and gains in employment in key areas, such as construction.

Between 1970 and 1976 total employment declined by 30,100 or 12.0 percent, the labor force shrank by 3.8 percent, and unemployment more than doubled from 6.1 percent to 14.1 percent (see Table #4). The following is a list of types of employment that were serverely (greater than 15 percent decrease) affected over the period:

Primary metals	-56.4%
*Fabricated metals	-53.8
*Machinery except electrical	-43.5
*Electrical machinery	-53.6
*Transportation Equipment	-17.6
Miscellaneous manufacturing	-47.6
*Food and Kindred	-19.5
Paper and Allied	-27.5
Printing and publishing	-43.7
*Chemical and allied	-26.0
*Contract Construction	-38.5
*Transportation and Public Utilities	-17.0

*Those types of employment which are likely to be affected by offshore drilling activity.

Recent figures for 1976 reveal that total employment declined by 3,400 or 1.5 percent since 1975, the labor force shrank by 0.5 percent, and unemployment grew from 13.2 to

** Parts of this section draw heavily upon the Economic Base Study of 1974 and the 1976 update.

TABLE 4

ANNUAL AVERAGES - LABOR FORCE STATISITCS

1970 - 1976

	1970	1971	1972	1973	1974	1975	1976
Civilian Labor Force	265,300	258,700	256,200	256,800	254,900	256,400	255,100
Total Employment	249,200	238,900	235,900	236,300	233,700	222,500	219,100
Unemployment	16,100	19,800	20,300	20,500	21,200	33,900	36,000
Unemployment Rate	6.1%	7.7%	7.9%	8.0%	8.3%	13.2%	14.1%

Percentage Changes= 1970-1976

Civilian Labor Force: -3.8%

Total Employment: -12.0%

Unemployment: -123.6%

SOURCE: Department of Labor and Industry - 1976 Benchmark

14.1 percent (see Table 4). The following is a list of types of employment that were greatly (greater than 5 percent decrease) affected over this one year period:

Primary metals	-15.0%
*Fabricated metals	- 7.0
*Machinery except electrical	-22.2
*Electrical machinery	-23.4
*Food and kindred	- 7.1

*Those types of employment which are likely to be affected by offshore drilling activity.
(See Table 5 for a complete listing of employment changes by industry.)

One of the contributing factors for the decline between 1970 and 1975 was that the most severe recession of the post-war era occurred between November 1973 and May 1975. The severity of this recession can be clearly seen in Table 6 which shows that the declines in industrial employment categories were more severe than the average recessionary declines. Added to this was the fact that this recession's duration was 18 months compared to the post-war average of 10.6 months.

The response of the local economy to the nation's recovery from the 1973-1975 recession was slow even though the national decline was nowhere as severe. As shown in Table #7, employment between May 1975, the end of the most recent recession, and May 1976 shows a decline of 0.9 percent. Data for the period May 1976 to May 1977, however, shows an increase in employment of 0.9 percent and the first indications of a turnaround for the County. This is especially evident in the construction and fabricated metals industries. Other job categories related to offshore drilling activity, however, such as electrical equipment, machinery except electrical, food, fabricated metals, and transportation equipment continued to decline. The chemical

TABLE 5

EMPLOYMENT BY INDUSTRY 1970 - 1976
(in 000's)

	1970	1976	Percent Change	1975	Percent Change '75 to '76
Primary Metals	3.9	1.7	-56.4	2.0	-15.0
Fabricated Metals	5.2	2.4	-53.8	2.6	- 7.0
Machinery Except Electrical	6.2	3.5	-43.5	4.5	-22.2
Electrical Machinery	21.8	10.1	-53.6	13.2	-23.4
Transportation Equipment	1.7	1.4	-17.6	1.4	0
Miscellaneous Manufacturing	6.3	3.3	-47.6	3.0	+10.0
Food and Kindred	9.7	7.8	-19.5	8.4	- 7.1
Textile	4.7	4.1	-12.7	4.1	0
Apparel	20.0	17.2	-14.0	15.5	+10.9
Paper and Allied	4.0	2.9	-27.5	2.8	+ 3.5
Printing and Publishing	4.8	2.7	-43.7	2.8	- 3.5
Chemical and Allied	9.2	6.8	-26.0	6.8	0
Contract Construction	7.0	4.3	-38.5	3.9	+10.2
Transportation and Public Utilities	35.4	29.4	-17.0	29.2	+ 1.3
Wholesale and Retail Trade	39.6	42.6	+ 7.5	43.2	- 1.3
Finance, Insurance, Real Estate	8.4	8.6	+ 2.3	8.5	+ 1.1
Services	30.8	29.1	- 5.5	29.1	0
Government	29.9	43.6	+45.8	43.6	+ 1.3
Total	250.6	211.5		224.6	
Net Change	1970-1976	-28.1		1975-1976	- 2.6

SOURCE; New Jersey Department of Labor and Industry.

TABLE 6

IMPACT ON NOVEMBER 1973 TO MAY 1975

RECESSION ON MANUFACTURING IN HUDSON COUNTY

DURABLE MANUFACTURING	NOVEMBER 1973	MAY 1975	PERCENT CHANGE	AVERAGE POST WAR RECESSIONARY CHANGE 1948-1970
Electrical Equipment	18.1	13.3	-26.5	-17.3
Machinery Except Electrical	4.9	4.6	- 6.1	-10.6
Miscellaneous Manufacturing	4.4	2.8	-32.6	-11.9
Fabricated Metals	3.4	2.7	-20.5	- 7.9
Primary Metals	2.7	2.1	-22.2	-10.4
NON-DURABLE MANUFACTURING				
Apparel	18.3	14.6	-20.2	- 2.4
Chemical and Allied	7.6	6.7	-11.8	- 4.8
Food and Kindred	9.7	8.5	-12.3	- 1.2
Textile	5.4	4.0	-25.9	-11.1
Paper and Allied	3.8	2.7	-29.0	- 6.0
Printing & Publishing	3.6	2.9	-19.4	+ 6.5

SOURCE: New Jersey Department of Labor & Industry.

TABLE 7

CHANGE IN EMPLOYMENT: MAY 1975 to MAY 1976 to MAY 1977
(In 000's)

	MAY 1975	MAY 1976	PERCENT Change	MAY 1977	PERCENT CHANGE '76 - '77
Primary Metals	2.1	1.8	-14.2	1.5	-16.6
Fabricated Metals	2.7	2.5	- 7.4	2.8	+12.0
Machinery Except Electrical	4.6	3.5	-23.9	3.3	- 5.7
Electrical Equipment	13.3	10.1	-24.0	10.0	- 0.9
Transportation Equipment	1.6	1.5	- 6.2	1.4	- 6.6
Miscellaneous Manufacturing	2.8	3.4	+21.4	3.1	- 8.8
Food and Kindred	8.5	8.0	- 5.8	7.1	-11.2
Textiles	4.0	4.2	+ 5.0	4.3	+ 2.3
Apparel	14.6	17.3	+18.4	17.9	+ 3.4
Paper	2.7	2.8	+ 3.7	2.7	- 3.5
Printing and Publishing	2.9	2.7	- 6.9	2.7	0.0
Chemicals and Allied	6.7	6.8	+ 1.5	6.8	0.0
Construction	3.9	4.1	+ 5.1	5.1	+24.3
Transportation and Public Utilities	28.6	29.1	+ 1.7	29.6	+ 1.7
Wholesale and Retail Trade	42.4	42.2	- 0.4	41.8	- 0.9
Finance, Insurance, Real Estate	8.5	8.6	+ 1.1	8.9	+ 3.4
Services	29.2	29.1	- 0.3	28.8	- 1.0
Government	43.3	42.5	- 1.8	43.5	+ 2.3
TOTAL	222.4	220.2	- 0.9	222.3	+ 0.9

SOURCE: New Jersey Department of Labor & Industry.

industry itself remained unchanged after a mild gain from '75 to '76. Essentially, then the Hudson County economy is back at the level it attained in May 1975, and is beginning to show signs of recovery in important basic industrial areas.

Most recent data from the Bureau of Labor and Industry for the period January through September of 1977 indicates a decline in unemployment for Hudson County to a rate similar to that of the entire year of 1975, about 13.2%, and shows indications of a definite recovery. Compared to the national unemployment rate, however, Hudson County is still experiencing abnormally high unemployment problems, as are other older urban areas.

Other reasons have also been suggested for this seemingly persistent decline in employment. Foreign competition in textiles and manufactured goods has been gaining an increasingly larger share of domestic markets in the 1970's with the older inner city firms suffering the most severe effects. This circumstance is intensified by the fact that many of these older firms have been closing their doors and either going out of business or moving to the suburbs or out of state to more competitive areas in the South. There, wages are lower, taxes are lower, and newer, more automated facilities can be purchased to improve the competitive position of these firms. These circumstances lead to a increased unemployment rate with fewer opportunities for those unemployed to gain employment.

Other indications of recent developments in the local economy include population and per capita income shifts, and a survey of industrial activity by Sales Management Magazine.

Population estimates and per capita income are shown in Tables 8 and 9. According to State estimates, Hudson County's population has decreased from 607,839 in 1970 to 606,190 in 1976 after having reached a high of about 612,000 in 1972. This represents a total loss of 1,649 persons or 0.3 percent. On a municipal level only Jersey City, Secaucus, and Weehawken suffered population losses since the 1970 census.

Per capita income is shown for all New Jersey counties for 1970 and 1974 in Table 9 and are ranked in Table 10. As can be seen, Hudson County kept pace with other northern New Jersey counties, though in general, this pace was slightly less than the State average. New Jersey, however, in 1977 ranked 3rd nationally in per capita income following only Alaska and Washington, D.C. and had a per capita income of $7,381. Hudson County would, then, rank high among counties throughout the nation though not ranking exceptionally high in New Jersey itself. This trend is reflected also in the Sales Management and Marketing Magazine Study which showed that in 1976 Hudson County ranked 42nd among the top 50 United States counties in industrial activity. The value of Hudson's shipments increased from $3,594,000,000 to $3,898,600,000 or 8.5 percent. Though a modest increase as compared to previous years and other counties, this is evidence that Hudson County holds a competitive position in the national economic picture. Hudson's present leveling off of unemployment in early 1977 and declines in late 1977 indicates a strengthening of Hudson's economy after weathering a long post recession decline. This trend is expected to continue nationally as well as in the county.

TABLE 8

POPULATION ESTIMATES FOR HUDSON COUNTY

1970.....609,065

1971.....611,005

1972.....612,345

1973.....610,070

1974.....608,465

1975.....607,180

1976.....606,190

POPULATION ESTIMATES BY MUNICIPALITY AND PERCENT CHANGE

1970 - 1976

MUNICIPALITY	1970 CENSUS	1976 PROVISIONAL ESTIMATE	PERCENT CHANGE
*BAYONNE	72,743	73,445	+.9
EAST NEWARK	1,922	1,975	+2.7
GUTTENBERG	5,754	5,785	+.5
HARRISON	11,811	12,150	+2.8
*HOBOKEN	45,380	46,290	+2.0
*JERSEY CITY	260,350	256,235	-1.5
*KEARNY	37,585	38,110	+1.4
NORTH BERGEN	47,751	48,175	+.9
SECAUCUS	13,228	12,105	-8.4
UNION CITY	57,305	57,560	+.4
*WEEHAWKEN	13,383	13,220	-1.2
WEST NEW YORK	40,627	41,140	+1.2
HUDSON COUNTY	607,839	606,190	-0.2

*Major Waterfront Communities

SOURCE: Population Estimates for New Jersey, Office of Business Economics, N.J. Department of Labor & Industry, July 1976.

TABLE 9

CHANGES IN PER CAPITA INCOME 1970 - 1974

COUNTY	1970 PER CAPITA INCOME	1974 PER CAPITA INCOME	PERCENT CHANGE 1970-1974
Atlantic	3,889	5,337	37.2
Bergen	5,921	7,681	29.7
Burlington	3,978	5,368	34.9
Camden	3,880	5,051	30.2
Cape May	3,934	5,742	46.0
Cumberland	3,793	5,167	36.2
Essex	4,756	6,003	26.2
Gloucester	3,467	4,659	34.4
Hudson	4,343	5,449	25.5
Hunterdon	4,702	6,325	34.5
Mercer	4,292	5,835	36.0
Middlesex	4,480	6,074	35.6
Monmouth	4,615	6,208	34.5
Morris	5,263	6,938	31.8
Ocean	4,180	6,246	49.4
Passaic	4,462	5,752	28.9
Salem	4,203	5,601	33.3
Somerset	5,295	7,282	37.5
Sussex	4,385	6,228	42.0
Union	5,574	7,172	28.7
Warren	4,093	5,694	39.1
State	4,702	6,185	31.5

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

TABLE 10

RANKING PER CAPITA INCOME

COUNTY	1970	1974
Atlantic	18	18
Bergen	1	1
Burlington	16	17
Camden	19	20
Cape May	17	13
Cumberland	20	19
Essex	5	10
Gloucester	21	21
Hudson	11	16
Hunterdon	6	5
Mercer	12	11
Middlesex	8	9
Monmouth	7	8
Morris	4	4
Ocean	14	6
Passaic	9	12
Salem	13	14
Somerset	3	2
Sussex	10	7
Union	2	3
Warren	15	15

Promoting Economic Development

General Standards

To the extent that government or local citizens can affect the economic development of an area, we in Hudson County must keep the following suggested standards in mind as appear in the Hudson County Land Use Study and Plan in relation to labor intensity and high productivity:

"Those industries that have adapted to core conditions rank high in land use intensity and productivity. With few exceptions the obverse of this is true in Hudson County. In a county of this size and degree of urban density, these two variables are exceedingly important. Enterprises which do not have a moderate-to-high degree of intensity along these dimensions cannot be encouraged to locate in Hudson County."[10]

The labor intensive aspect of this recommendation evolves from the position that it is unreasonable to make any major committment of land to any land use that does not equitably deal with and attempt to value both local and regional needs. In the realm of economic development, therefore, it is unreasonable to allow developments that do not yield an adequate number of local jobs. If this is not the case, the stagnating economy and the unemployment of this county will never be solved. Toward this end a criteria of 25 to 30 jobs per acre has been suggested as a standard toward which both government and the public should aim. Table 11 shows the Industrial Land Intensity as documented in the 1974 Hudson County Land Use Study and Plan.

A third criteria added for consideration in locating

10. Hudson County Land Use Study and Plan, 1974, pg.68.

TABLE 11

HUDSON COUNTY INDUSTRIAL LAND INTENSITY

MANUFACTURING	EMPLOYEES	ACRES	EMPLOYEES PER ACRE
Food and Kindred Products	8,640	226	38.2
Textile Mill Products	5,130	52	98.7
Apparel and Other Textile Products	18,172	123	147.7
Lumber and Wood Products	420	80	5.3
Furniture and Fixtures	1,152	30	38.4
Paper and Allied Products	3,654	107	34.2
Printing and Publishing	4,185	41	102.1
Chemical and Allied Products	7,406	391	18.9
Petroleum and Coal Products	1,243	907	1.4
Rubber and Plastic Products	727	182	4.0
Leather and Leather Products	2,898	10	289.3
Stone, Clay, and Glass Products	2,601	230	11.3
Primary Metal Industries	3,687	299	12.3
Fabricated Metal Products	5,063	98	51.6
Machinery Except Electrical	5,427	158	34.3
Electrical Equipment and Supplies	17,730	204	86.9
Transportation Equipment	1,761	73	24.1
Instruments and Related Products	874	49	17.8
Miscellaneous Manufacturing Industries	5,441	64	85.0
TRANSPORTATION AND OTHER PUBLIC UTILITIES			
Local and Interurban Passenger Transit	2,112	22	96.0
Trucking Transportation Services	13,296	345	38.5
Water Transportation	2,134	96	22.2
Communication	N.A.	73	N.A.
Electric, Gas, and Sanitary Service	N.A.	497	N.A.

Source: Hudson County Land Use Study & Plan
Hudson County Planning Board, 1974

industries in Hudson County is cleanliness and compatibility. By cleanliness is meant that an industry not add significantly to the pollution that already affects the area. By compatibility is meant that it "fit in" with the community and not create a hardship or nuisance to its already existing neighbors, be they human or other industrial uses.

These standards have a direct effect upon the eligible onshore activities which might locate in Hudson County. As is pointed out in the Source Book[11], onshore support facilities are land intensive services which do not achieve even a moderate labor to land use ratio. This fact would create a negative impression on officials deciding upon the merits of locating such facilities in their municipalities. However, where facilities already exist or could be expanded in conjunction with new onshore activities, a great potential exists for increasing employment without the use of much waterfront area thus limiting the negative impacts of such onshore activities to the economy. An example of such expansion would be a repair and maintenance yard to be located at or adjacent to an existing dry dock and ship repair yard. Generally such suitable facilities exist on the Hudson County waterfront which could employ additional persons without the use of too much additional waterfront acreage.

This is not to say that certain vacant and underutilized facilities, piers, warehouses, etc. should not be used to accommodate onshore activities of all types compatible with the environment. Where facilities exist, their use should be

11. The Source Book: Onshore Impacts of Outer Continental Shelf Oil and Gas Development, The Conservation Foundation, May 1977, pp.31-72.

encouraged for the benefit of the county tax structure and the communities involved. However, large tracts of vacant virgin land should be used in accordance with the suggested criteria for development advanced previously and where deemed appropriate, areas abandoned in an undeveloped condition should also be developed under these labor and land use intensity standards.

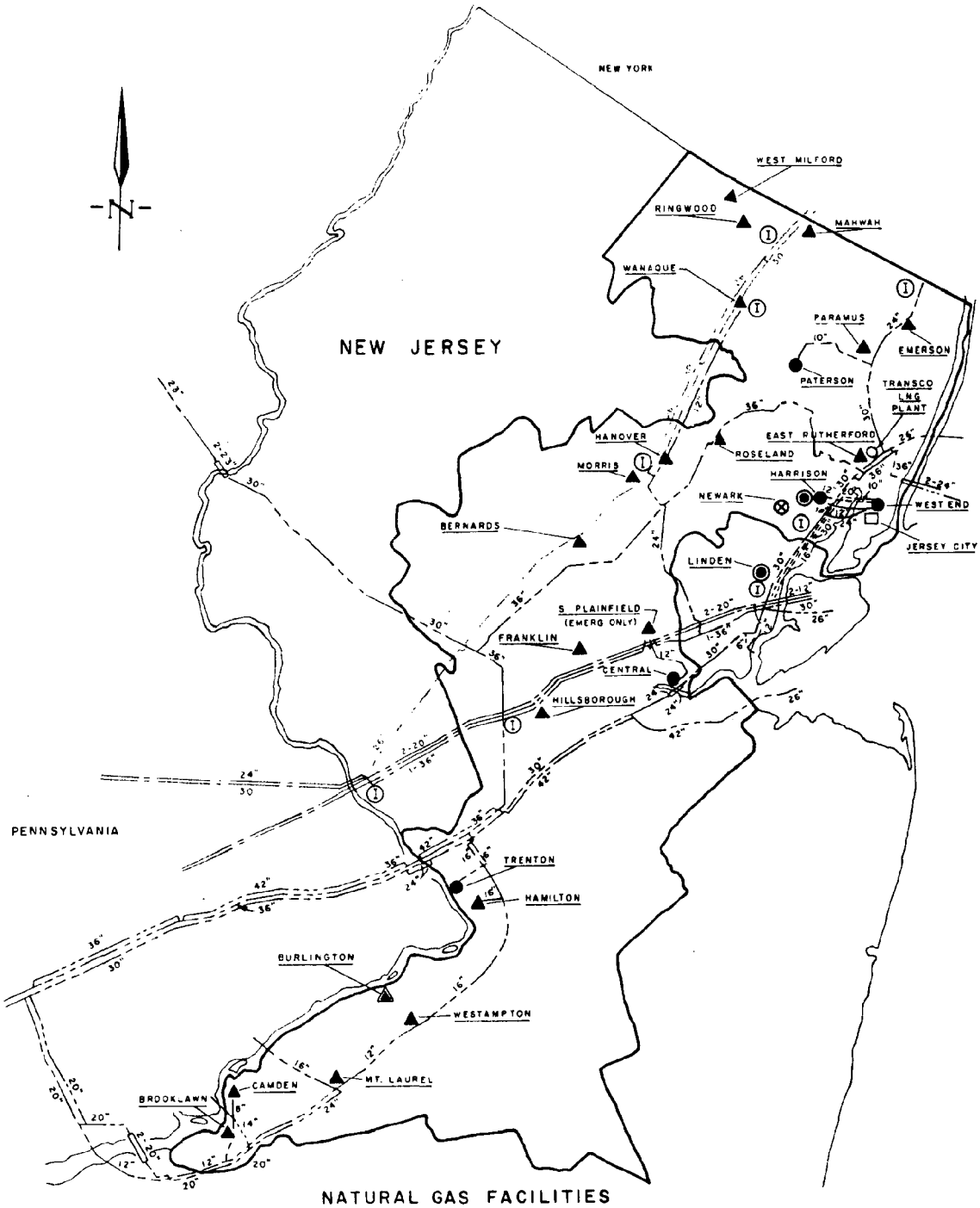
In an examination of waterfront areas suitable for development of onshore facilities, these criteria will be used in conjunction with others in determining which activities are most appropriate for Hudson County. With a high unemployment rate and a stabilizing population of about 600,000, the County cannot ignore potential economic growth along the waterfront, but neither can it sacrifice its greatest resource for short term gains when the long term future for offshore drilling is still very unclear.

TABLE 12

HUDSON COUNTY - 1977 TAX RATES

MUNICIPALITY	RATE PER $1,000 ASSESSMENT
*Bayonne	75.67
East Newark	57.01
Guttenberg	56.99
Harrison	51.16
*Hoboken	104.66
*Jersey City	94.77
*Kearny	53.32
North Bergen	34.34
Secaucus	24.23
Union City	58.97
*Weehawken	56.99
West New York	72.50

* Major Waterfront Communities



NATURAL GAS FACILITIES

- NATURAL GAS METERING STATION
- GAS PLANT & METERING STATION
- SYNTHETIC NATURAL GAS PLANT
- LIQUEFIED NATURAL GAS STORAGE PLANT
- GENERAL OFFICE
- GAS DISPATCHING HEADQUARTERS
- INTERCONNECTION

- TRANSCONTINENTAL
- TEXAS EASTERN
- TRANSCONTINENTAL
- PSE & G

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

AUGUST 31, 1975

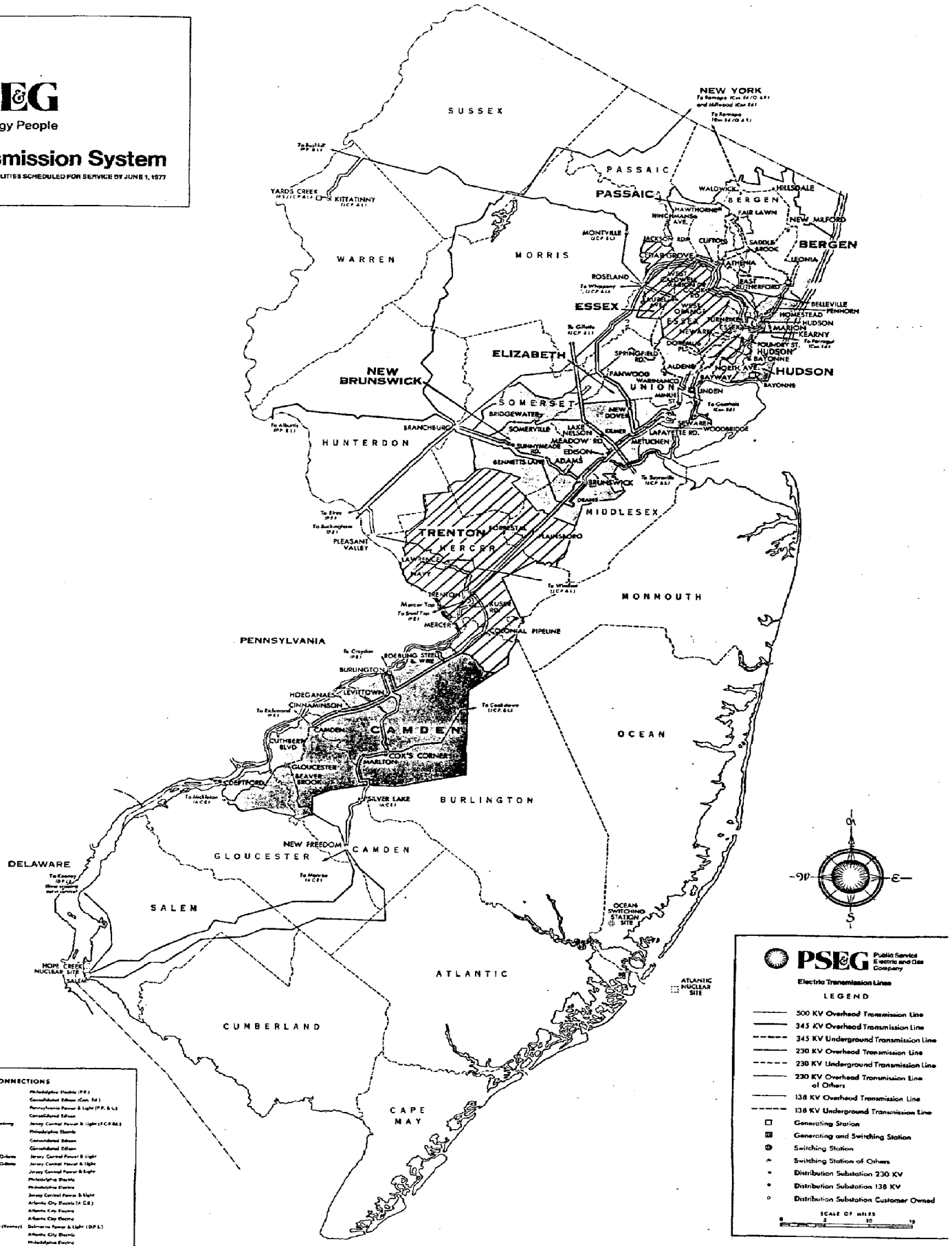
MAP 9

PSE&G

The Energy People

Transmission System

INCLUDING FACILITIES SCHEDULED FOR SERVICE BY JUNE 1, 1977



MAP 8

D. Energy Facilities Rights-of-Way

The entire area of Hudson County as well as parts of ten other counties running in a narrow corridor from Gloucester County to Bergen County are serviced by Public Service Electric and Gas Company. Maps 8 and 9 indicate the transmission system associated with the Public Service electric distribution complex and the natural gas facilities and transmission system within New Jersey as it relates to Hudson County and the national system.

From Map 8 the following electric transmission and generation facilities are apparent:

a) 3 distribution substations of 138 kv located in Bayonne, Kearny, and North Bergen and designated Bayonne, Turnpike, and Homestead substations.

b) 1 distribution substation of 230 kv located in Secaucus and designated Penhorn substation.

c) 2 switching stations located in Jersey City and Bayonne and designated Marion and Bayonne Stations. The Bayonne station is connected to a 138 kv underground line and the Marion station is connected to 138 kv underground and overhead lines.

d) 1 generating and switching station located in Kearny and designated Kearny generating and switching station. This station is connected to 138 kv overhead transmission lines.

e) 2 generating stations located in Bayonne and Jersey City and designated Bayonne and Hudson generating stations respectively. The Bayonne station is connected to unknown transmission lines and the Hudson station to 138 kv overhead lines, 230 kv overhead lines, and a 345 kv underground line to Consolidated

Edison of New York.

A close examination of Map 8 reveals that Hudson County is closely tied to a statewide transmission system which does not associate itself with the coastal zone of southern New Jersey. It could, however, be easily tied into a pipeline system which originated in Philadelphia with destinations in northern New Jersey including Hudson County.

From Map 9, Natural Gas Facilities, a similar situation exists as with electric transmission. The Public Service Company is connected to a national transmission system which bypasses New Jersey's southern coastal zone and is concentrated in a corridor between Philadelphia and New York. Hudson County is serviced by Transcontinental lines and some of Public Service's own lines from their West End, Jersey City plant. The rights-of-way associated with these facilities could conceivably be used to accommodate petroleum pipelines originating in Philadelphia or in Linden, New Jersey.

The following facilities are indicated on Map 9 in the Hudson County area:

a) 2 Transcontinental gas lines - 30 inch and 36 inch.

b) 2 Public Service Electric and Gas lines - 10 inch & 16 inch.

c) 1 gas dispatching station in Jersey City.

d) 2 gas plants and metering stations located in Jersey City and Harrison.

e) 1 synthetic gas plant in Harrison.

f) 2 Transcontinental gas connections to Manhattan-24 inches.

Through informal meetings and information received from members of the Exxon Corporation in Bayonne, it was learned that major oil pipelines exist between the Bayonne complex and the Linden Bayway

refinery complex. In many instances larger tankers which cannot navigate along the Arthur Kill unload at the Bayonne Plant because of their excellent dockage and deeper channel facilities. These crude supplies are then piped to the Linden Bayway refinery for processing.

E. Environmentally Sensitive Lands

Unlike southern counties in New Jersey Hudson County's waterfront does not have the beaches, thousands of acres of tidal wetlands and areas such as the Pine Barrens which obviously fall into this category However Hudson County does have natural salt marshes, bird migration areas and open areas which can be utilized as parkland and which can be preserved and buffered from industrial development. Hudson County also has historical sites and landmarks which are being restored and buffered along its waterfront In this sense, then, Hudson has environmentally sensitive areas which concern us in this waterfront study.

Hudson County's waterfront has been associated with the railroad industry, shipping, and the oil industry for many years Most of it has at one time or another been industrially zoned and industrially used However, salt marsh areas and bird migration areas such as exist at the Caven Point Army Terminal on the Hudson River and the Lincoln Park area along the Hackensack River should be buffered from industrial development taking place in the future in and around these areas

The Liberty State Park area has been under study by the Department of Environmental Protection and the Liberty State Park Study and Planning Commission. The lack of adequate park and recreation space in Hudson County has prompted many groups to support a plan for this area which limits its use to recreation areas and natural marshlands. Others desire development in amounts sufficient to cover costs of park development and maintenance. In either case those marshland areas flowed by the tides and unique to the Hudson waterfront should be afforded some protection under any state plan. The state is

t submit this plan in early January to the Governor the outcome of which will determine the direction for Liberty State Park.

Within the park area lie the old Jersey City Railroad Station, now being restored and the Morris Canal Basin, an historical harbor site dating back to the 19th century. These areas have been included in the proposed plans for Liberty State Park as recreational areas for future development.

The Hackensack Meadowlands Area, though not anticipated to be directly involved in onshore development, contains hundreds of acres of tidal marshlands and waterfowl areas under the jurisdiction of the Hackensack Meadowlands Development Commission. The state intends, as indicated in the Coastal Management Strategy, to leave this coastal area under the HMDC's jurisdiction thereby leaving the preservation and buffering of these areas in their control.

The Palisades extending into Hudson County from Bergen County is also a sensitive area which needs protection and buffering if the views of the Hudson River and Manhattan are to be preserved for the public throughout the County. One means suggested of accomplishing this would be to include the Palisades as the upland boundary of the Northern Waterfront coastal zone. This has been under discussion with the State and will be considered in the preparation of the 1978 coastal zone plan by the Department of Environmental Protection

Included in any consideration of environmentally sensitive areas is the consideration of air and water pollution in such areas.

The air quality of Hudson County and the northeastern New Jersey area in general has come under much scrutiny in recent years because of its high pollutant levels. In 1977 as well, New Jersey's water quality has been studied and Newark Bay, the western water border of Hudson County, has been found to be one of a number of highly polluted water bodies in the State. Less severe though similar circumstances exist in Bayonne, Jersey City's neighbor, where major chemical complexes along the Hudson River and Kill Van Kull are located.

As reported in "Who's in Charge,[12]" the State Council on Economic Priorities in 1975 identified New Jersey as having the worst oil refinery pollution of any state or region in the nation.

These types of conditions which have existed in Hudson County in recent years became major objections to the location of oil storage terminals in Jersey City and Bayonne in the past 3 years. At public hearings concerning the Steuber plan of 1975, concerns over high pollution and cancer rates in Hudson County were raised.

These concerns were supported by the Interim Report of the New Jersey State Senate's Incidence of Cancer Commission (December,1976). In this report New Jersey Commissioner of Health Dr. Joanne Finley is quoted as stating in a May 1976 report from her department that,

> "New Jersey, the nation's most densely populated State and one of its most highly industrialized, has taken on a new distinction in recent years:

12. David Morell, Who's in Charge?, p.82

The nation's most cancer-prone state."[13]

In the conclusions of this Senate report, the Commission Stated that "air contamination by carcinogens is a primary cause of many types of cancer. ....There is a correlation between high incidence of environmental cancer in New Jersey and its status as a manufacturing center, particularly of chemicals and related materials."[14]

The question of the suitability of Hudson County for the addition of oil related industries to its coastline has been questioned by such groups as Bayonne Against Tanks, the Hudson and Bergen Waterfront Coalition, and the Hoboken Environment Committee. In a letter to the Hudson County Planning Department in November, 1977 from the chairman of Bayonne Against Tanks, the following was stated:

> "We ask you not to recommend this area (Bayonne) for installations that might contribute further to factors that will again downgrade our already overburdened environment. ...We ask you to please be most sensitive to our situation, since we are also an extremely congested county. Your decision and recommendations will affect the health, safety, and well-being of hundreds of thousands of residents living in an area already designated as Number 1 in cancer disease in the nation.
>
> We would like to go one step further. We ask your help in advising our city fathers on

13. Ibid., p.81
14. Ibid., p. 81

upgrading our zoning so as to preclude any further tank farms or refineries for this area."

A similar letter was received from the Hoboken Environment Committee expressing their opposition to the placement of any OCS support facilities along the Hoboken Waterfront "because of the geography, the density of population, and current land uses in this mile-square city." These letters and others represent the continued negative feelings expressed by Hudson County residents toward the chemical industry's location in this area and a desire to see such favorable zoning that may exist at present changed in the future. Public attitudes in general and state reports of recent origin all indicate a need for the limitation and even the elimination of energy and chemical facilities in Hudson County. This can be satisfied only in relation to state and national needs for energy facilities and for a cleaner environment. Hudson County can absorb its share of energy facilities, assuming it has not already done so and this assumption is greatly in question, by providing major sites for clean onshore service and supply bases for offshore drilling operations. As described already, these bases can provide jobs and tax revenues while at the same time affecting the environment only minimally. Repair and maintenance work is also a good way to serve the national and state interests while at the same time preserving the

environment at its present level without further industrial or chemical degradation.

The air quality problems of this area cannot be solved by concentrating chemical industry operations here. As the Coastal Management Strategy Use Policies urge, refinery and oil storage facilities can only be permitted where these facilities will not contribute unacceptably to the overall regional air and water quality. Given present technology, such a policy applied to the Hudson County area can only help and support the populist position against such facilities locating in the county. It is with this and other limitations in mind that service, supply, and repair operations have been the only onshore operations recommended.

VII. Preliminary Analysis - Suitable and Nonsuitable Coastal Energy Facility Sites, by type of facility.

In section V. C. five types of OCS facilites were recommended for location in Hudson County with three of these considered probable in terms of the oil industry's desire to locate them here. These facilities are:

1. Temporary Service Base - probable and recommended.
2. Permanent Service Base - probable and recommended.
3. Repair and Maintenance Yard - probable and recommended.
4. Steel Platform Installation Service Base- improbable, but recommended.
5. Pipeline Installation Service Base - improbable, but recommended.

Several areas have been identified in Section V. B. as possible sites where OCS facilities might be suitable and other areas have been indicated where these five facilities would be inappropriate or unsuitable. Those areas suggested in V.B. as suitable will be matched with those facilities recommended for Hudson County in V.C. A brief explanation for the matchup will be given, but the primary reasoning for this process is included in the inventory analysis and in the discussion of facility requirements. This analysis is summarized in Table 13.

1. The following five facilities are recommended for location in Hoboken if the oil companies are willing to segment their onshore operations:

a) Temporary Service Base

b) Permanent Service Base

TABLE 13

SUITABLE COASTAL ENERGY FACILITIES AND SITES

	HOBOKEN*	WEEHAWKEN*	JERSEY CITY	BAYONNE	KEARNY
Temporary Service Base	X		X	X	X
Permanent Service Base	X		X	X	X
Repair and Maintenance Yard	X	X	X		X
Steel Platform Installation Service Base	X		X	X	X
Pipeline Installation Service Base	X		X	X	X

* If the oil companies are willing to segment their onshore operations.

c) Repair and Maintenance Yard

d) Steel Platform Installation Service Base

e) Pipeline Installation Service Base

Hoboken's waterfront provides the type of zoning and the available facilities for an onshore base. Vacant warehousing could be used for storage either at the Port Authority piers or at the abandoned warehouse and pier south of Stevens Campus. Though this latter site is too small itself for an entire base, storage and docking areas are available here. Road access to either point is poor and congested. Repair work could be done separately at the Union Dry Dock Company site in Weehawken or at their proposed new site north of Stevens Campus.

Because of the nature of Hudson County, its density and built up character, readily available sites large enough for bases other than temporary bases or bases with similar requirements are difficult to find. For this reason the Office of Planning is suggesting "unconventional" service bases for this area. This is reflected in Hoboken's recommendations and in those for parts of Jersey City as well. Areas exist which can accommodate supply storage, or helipads, or repair yards, but only the Greenville Yards can accommodate all at once. Kearny Point and other community sites outside of Jersey City cannot accommodate helipads by their zoning restrictions.

Within a mile or two of one another lie sites which could accommodate different onshore activities which traditionally take place at one support site. If oil companies were willing to divide their support base activities into specific segments,

more sites would be available to serve as bases in Hudson County. This would be the only circumstances under which Hoboken would be feasible as a support base area.

2) The following five facilities are recommended for location in Jersey City:

a) Temporary Service Base

b) Permanent Service Base

c) Repair and Maintenance Yard

d) Steel Platform Installation Service Base

e) Pipeline Installation Service Base

Jersey City's waterfront area from the Hoboken line to the southern boundary of Liberty State Park is unsuitable for onshore facilities. However, maintenance and repair work could take place at the Rodermond Industries dry dock facilities in Morris Canal Basin and helipads might be located in this northern waterfront area in association with other OCS development if a segmented approach to onshore facilities siting is taken. Caven Point Army Terminal could also be used by oil companies if the Army decided to abandon its terminal or lease part of its land in the future.

The Greenville Yards provide the greatest land availability and water access for any type of service base to locate there. The railroad still operates in these yards and could service the needs of oil companies in this area. Road access to the upland area of this site is provided by an extension of the N.J. Turnpike but riverfront access itself is limited to a two-lane road needing repair. Utilities at the site would need to be refurbished or reinstalled to accommodate the needs of onshore support bases. (See also the Port

Authority Study - May, 1977 pp. 71-78).

One other site not mentioned previously is the Port Jersey Industrial and Marine Center. This area contains adequate acreage and water access for the location of onshore bases here. However, as explained in the previous inventories, this area has been twice defeated as the site for oil and chemical storage facilities through public pressures against such facilities. It is, however, suitable in terms of needed requirements for onshore bases.

No other areas are presently feasible for OCS development in Jersey City at this time.

3) The following four facilities are recommended for location in Bayonne:

a) Temporary Service Base

b) Permanent Service Base

c) Steel Platform Installation Service Base

d) Pipeline Installation Service Base

Bayonne's waterfront has been the chosen location for the siting of many oil and chemical company facilities in the past, and many Bayonne residents feel this trend will continue uninterrupted until their zoning regulations are upgraded. Bayonne now houses Exxon, Hess, and Texaco tank facilities with limited areas on their properties for expansion. These sites are suitable for onshore bases of all kinds and also for tank farm expansion, but their location at these sites would be at the discretion of these oil companies.

Bayonne's boundary to the west, Newark Bay, does not provide sufficient shore area or water depth to support onshore

facilities of any type. This eastern waterfront is also lined with residences and parks which would prohibit the location of any industry in this area as is reflected in Bayonne's zoning code.

The U.S. Military Ocean Terminal also provides available facilities for onshore service development.

4) The following five facilities are recommended for location in Kearny:

a) Temporary Service Base

b) Permanent Service Base

c) Repair and Maintenance Yard

d) Steel Platform Installation Service Base

e) Pipeline Installation Service Base

Kearny's waterfront is considerably farther from open ocean access than any other area in Hudson County. It also requires maneuvering through narrower channels, the Kill Van Kull and Newark Bay areas, then would locations along the Hudson River. One site in Kearny is suitable for onshore support bases. This area is located on Kearny Point and is designated Port Kearny. This area has adequate rail and highway access and is being offered by the River Terminal Development Company for buildings and dock and marine facilities. Presently, this site is occupied by a number of different companies including salvage and stevadoring operations. Also operating in this area is the Federal Shipbuilding and Dry Dock Company which could handle repair and maintenance operations on supply and crew boats. Adequate utilities are supplied at this site for onshore operations. (See also the Port Authority Study - May, 1977 - pp.79-84).

There exist, then, relatively few areas in Hudson County which can adequately serve the needs of offshore oil companies and their onshore needs unless an innovative approach to segmented onshore operations is undertaken. All areas pinpointed as possible sites are shown on the Hudson County Map of Political Divisions-MAP-1A and include those sites in Hoboken and Jersey City where such segmented bases could be located.

Those facilities which are unsuitable for location in Hudson County are the following:

a) Pipe Coating Yard

b) Pipelines and Landfalls

c) Steel Platform Fabrication Yard

d) Concrete Platform Fabrication Yard

e) Partial Processing Plant

f) Gas Processing and Treatment Plant

g) Refinery

h) Petrochemical Complex

i) Marine Terminals (Tank Farms)

Although Bayonne presently has zoning which permits refining and tank farms to locate there, the air quality problems, water quality problems, density of population, danger of explosion, and adverse public opinion to such facilities prohibits the recommendation of such facilities for this area. The proximity of several of these facilities to residential areas would also put in question the feasibility of such facilities' expansion.

Those areas unsuitable for location of onshore facilities of any type are:

1) the entire waterfront of North Bergen

2) The entire waterfront of Guttenberg.

3) The entire waterfront of West New York.

4) The entire waterfront of Weehawken unless railroad properties can be acquired and cleared. Union Dry Dock Company located here could be used for repair and maintenance operations.

5) The area of Hoboken immediately east of Stevens Campus.

6) The Jersey City waterfront from the Hoboken line to the southern border of Liberty State Park.

7) The western shoreline of Bayonne along Newark Bay.

8) Kearny Point other than that area designated as Port Kearny.

All these areas have been given some potential for onshore activity due to their location along major waterways. However, other various factors have aided in their elimination as possible onshore service areas and have been reviewed in Section V and VI.

VIII. STATE AND NATIONAL INTERESTS IN COASTAL ENERGY FACILITY SITING

Hudson County as a part of the northeastern energy corridor has a responsibility to provide energy production facilities in the state and national interests. At the same time the County has a responsibility to its residents to see that a safe healthy environment is promoted in the present and also for the future. How can these two seemingly opposing responsibilities be met?

Hudson County has been meeting its state and national responsibilities for energy siting for many years. In 1977 Exxon's Bayonne Plant celebrated its 100th Anniversary at its present site while Bayonne itself in 1977 celebrated its 108th Anniversary as an incorporated community. Texaco, Hess, and many other petro-chemical companies are located in Bayonne also. Other related energy facilities are located in Jersey City and other communities within the County. It cannot be said that Hudson County has not contributed its past fair share in energy facilities to the State. However, what about the future?

Partly as a result of the location of these types of facilities in Hudson County, it has been experiencing many "unhealthy" days as measured by the Department of Environmental Protection's air quality index. Hudson County's proximity to New York and its use as a transportation corridor to this area has also been a major contributing factor to this problem. While it is clearly in the state and national interests to have adequate energy where it is needed most, it is also clear that it is in the state and national interests to foster environmentally safe urban areas. It should not be the case that urban areas already overburdened with pollutants should be forced to accept further polluting energy

facilities in order to maintain the pristine and biologically rich rural and suburban areas. This type of philosophy can only foster a continued flight from the city and worsening of the fiscal status of urban areas. Urban areas should encourage clean energy facilities to locate in their areas not only in order to meet their state and national obligations but also to attain some satisfactory level of environmental quality. The types of energy facilities recommended in this report are these kinds of facilities. They help to fulfill the needs of the nation for energy, especially the needs of the New Jersey-New York area, and also contribute in a positive way to the nondegradation of the local environment.

This study has sought to accommodate those types of facilities that are consistent with this public concern and with the policies and plans established by the Office of Planning and by the local municipalities themselves. These local concerns have to be balanced with state and national concerns not only for energy facilities but also for housing, transportation, recreation, health, and other important areas. The energy problem does not exist in a vacuum and cannot be treated as if it were. For this and other reasons, a county level investigation of the constraints operating on local communities is the appropriate level at which to confront these overall energy issues.

THE COUNTY ROLE IN COASTAL ENERGY FACILITY SITING

The Hudson County Office of Planning has been operating as a liaison between the state and local communities as well as a representative of the entire county's interests in energy siting. This office has conveyed to the state in

this report the county plans and policies on energy facility siting as well as local zoning restrictions concerning such siting. Local community leaders were informed of the program the county was undertaking and were requested to submit a statement on their community's official position in this matter. Often, the local newspapers revealed more insight into local matters and positions than did official communiques from municipal offices. Nevertheless, this avenue was kept open and continually solicited.

Inter-county relationships were also pursued through the state and between counties themselves. Middlesex and Union Counties being outside the CAFRA area and mostly industrialized along their coastlines experienced similar problems and siting constraints as did Hudson County. These relationships were strengthened by the sharing of monthly reports between counties and monthly meetings with the state in the various counties involved in the study. Though Hudson County participated in this one year project for only four months, the Office of Planning learned from the mistakes and previous work which had been completed by the other counties. This information was shared freely among counties.

The county office also served as an information source for local community environmental and business groups who were interested in the impacts of siting facilities in the county. In presentations to various groups, all the aspects of the study including the research process were discussed in an attempt to clarify the methods of arriving at the county recommendations to the state. All these meetings were held with the aid of local citizens and were open to anyone interested in attending. Often times industrial and

oil company representatives offered insights into the planning process used by their firms.

During this project the county has been a technical advisor to local communities which had not previously been involved in coastal zone planning. The county level seemed to the state to be the appropriate place to put the responsibility for gaining some expertise with outer continental shelf activity, and rightly so. To manage a program such as this one, the municipal level in New Jersey would have been too diverse. Over 200 communities were involved in this project, but all were within 12 counties. This county orientation also allowed for local input into the project with a minimal amount of duplication by the state.

The state, as an overseer and director to the project mainly carried on by the counties, satisfied its needs for information and the national needs of the Department of Commerce using this county intermediary. Though many of these county agencies do not have zoning powers due to the strong home rule legislative position in New Jersey, they have gathered the information necessary for effective planning of energy facilities and constructively disseminated this to small individual communities. In this way the familiarity with the subject by the county can be transferred to the local municipality with a local view in mind, but also with the greater county, state, and national needs being taken into consideration as well. The county level, then, seems the best governmental level at which to undertake this type of program.

APPENDIX

A. As part of the research effort requested by the Department of Environmental Protection, a literature search was conducted of relevant State, county, and local coastal related materials. The materials collected in this effort constitute Appendix A.

B. Hudson OCS Air Transport Questionnaire

C. The Public Participation Process

Literature Search

1. New England River Basins Commission, Factbook : Onshore Facilities Related to Offshore Oil and Gas Development. Boston, Mass. November, 1976.

2. _____, Estimates for New England: Onshore Facilities Related to Offshore Oil and Gas Development. Boston, Mass. November, 1976.

3. The Center for Environmental Studies, Princeton University, Who's in Charge? - Governmental Capabilities to Make Energy Facility Siting Decisions in New Jersey. July, 1977.

4. The Center for Coastal and Environmental Studies, Rutgers University, The State of New Jersey Onshore Support Base Facilities for OCS Oil and Gas Development, A Permit Handbook. September 2, 1977.

5. Department of Environmental Protection, Alternatives for the Coast. October, 1976.

6. Conservation Foundation, Source Book: Onshore Impacts of Outer Continental Shelf Oil and Gas Development, David C. Williams and Jeffrey A. Zim (eds). Chicago, Illinois. May, 1977.

7. U.S. Department of the Interior, OCS Lease Sale #40- Final Environmental Statement. Washington, D.C., 1976.

8. Department of Environmental Protection, Coastal Management Strategy for New Jersey, Cafra Area. September, 1977.

9. Hudson County Planning Board, Economic Base Study. October, 1974.

10. _____, Land Use Study and Plan. December, 1974.

11. _____, Hudson County's Overall Economic Development Program. 1976.

12. _____, Hudson County Transportation Study and Plan. June, 1974.

13. Hudson County Office of Planning, Annual Transportation Report 1975. June, 1976.

14. Jersey City Division of Planning, Jersey City 1977- Northern Waterfront Plan. June, 1977.

15. National Kinney Corporation and United Housing Foundation, Liberty Harbor Technical Report: A Plan for a New Community on Jersey City's Waterfront, 1973.

16. New Jersey Department of Community Affairs, Liberty Harbor: A Plan for a New Community on Jersey City's Waterfront, 1973.

17. _____, The Feasibility of Protecting Weehawken Yards for Large Scale Development, 1973.

18. Enviro-Sciences Inc., Environmental Consultants, Environmental Assessment Report - JOC Oil Co., Inc., Fuel Oil Treating and Storage Facility - Jersey City, NJ. May, 1974.

19. Environics, Inc., Environmental Consultants, Environmental Assessment of Bulk Storage Terminal Facilities for Steuber Company, Inc., Bayonne and Jersey City, NJ. March, 1975.

20. Jersey City Division of Planning, Comprehensive Waterfront Plan. April, 1972.

21. _____, An Analysis of the Economic Structure of Jersey City. 1975.

22. Center for Municipal Studies and Services, Stevens Institute of Technology, Waterfront Redevelopment Project - Report #1: Existing Conditions. January, 1976.

23. Weehawken Planning Board, A Report on the Waterfront Development Plan. 1973.

24. U.S. Army Corps of Engineers, Draft EIS on Construction Permits for proposed Fuel Oil Storage Terminal in the Hudson River, Weehawken Cove, Hudson County, New Jersey, 1975.

25. The Port of Authority of New York and New Jersey, Port Authority Facilities Information Guide, 1973.

26. _____, The New York-New Jersey Harbor: Its Scope, Waterways, Commerce, Terminals, and Shoreline. 1974.

27. _____, The New York-New Jersey Harbor, 1974.

28. _____, Underdeveloped Land Adjacent to Deep Water in the Port of New York, 1975.

29. _____, Industrial Development Feasibility Study, January, 1976.

30. _____, Support Bases for Offshore Drilling: The Port of New York Potential. May, 1977.

31. Tri-State Regional Planning Commission, The Tri-State Coastal Zone: Management Perspectives. April, 1975.

HUDSON OCS AIR TRANSPORT QUESTIONNAIRE

The following questionnaire is part of a transportation capabilities study being prepared by the Hudson County Office of Planning. Please answer the questions below and attach any other pertinent material to the back of this sheet.

1. How many and what types of helicopters does your company have available for long term leasing for offshore drilling operations?

_____

_____

_____

_____

2. If necessary, would your company be willing to acquire new equipment in order to meet the needs of offshore drilling, e.g. turbine (jet) powered helicopters?

_____

_____

3. Please give the name and location of any heliports, airports, or other landing sites from which you operate or would be willing to operate in the metropolitan area in order to support offshore drilling activity and also the number of helipads available at each location for such use.

1. _____

2. _____

3. _____

4. _____

5. _____

4. Do you anticipate any air traffic problems at any of the sites you have indicated above due to increased helicopter traffic?

_____

_____

_____

5. Please attach any other information you feel would be useful in this study to this page.

_____

_____

C. The Public Participation Process

Hudson County's delayed participation in this energy facility siting study severely limited the types of public participation that could be used in this study as well as the time available for receiving public comment. To facilitate public participation under these circumstances, locally active environmental and community groups were utilized to organize meetings at which this siting project was presented. Suggestions and reactions at these meetings were incorporated where possible into this report. Formal letters from participants at these meetings were also received concerning their groups' positions on energy facility siting. Such letters were received from New Jersey Citizens for Clean Air Inc., Bayonne Against Tanks, the Hoboken Environment Committee, and the Hudson and Bergen Waterfront Coalition. Some of the content of these letters is cited in the text.

Officials from all communities in Hudson County were contacted by letter and the planning, zoning and engineering departments of each local community were also contacted for information and suggestions during the course of this project. Bayonne's Mayor and Council indicated in the news media that Bayonne was interested in receiving some of the activities associated with offshore drilling while Jersey City's Mayor Smith indicated that Jersey City was not ready to make any committment at this time until "not only public forums and discussions, but intensive study into the ramifications of any such operation" could be completed.

At the meetings held in Hoboken, at which citizens from the major waterfront communities of Hudson and Bergen Counties were present, and at the meeting in Bayonne, at which various energy related industries were represented as well as environmental interests, a willingness to accept the County's share of energy facilities was expressed. The need for employment and clean industry to locate in the County was a priority.

Accomplishing this in the most environmentally sound manner was also important. Use of the waterfront by the public through improved access and "natural" development was stressed. By "natural" development is meant the preservation of scarce salt marshes and bird migration areas along the Hudson River with developed parklands acting as buffer zones for these areas.

Tank farms, refineries, and the more intense types of petrochemical industries were absolutely rejected by all participants at these meetings. Air pollution, truck traffic congestion, inadequate public waterfront access, and the inherent danger of these facilities in such a densely populated area as Hudson County were cited as the major reasons for this opposition. Industry representatives expressed skepticism at the cited "inherent danger" of such facilities and blamed the communities, not the industries, for the inadequate public waterfront access. Related repair, maintenance, and supply industries expressed an eagerness to be associated with offshore oil operations and saw the opportunity afforded the County as one to boost the local economy associated with these operations.

General agreement as to service base type operations locating in Hudson County was reached, if indeed it was necessary to locate any types of facilities here. These minimally polluting, non-storage type operations that use a small amount of waterfront land can best serve the needs of the County, the State, and the public in the interests of all concerned.

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