A. OVERVIEW

Nestled in the historic Mid-Hudson Valley, with some seven miles of shoreline along the magnificent river that gives the valley its name and character, the western portion of the Town of Red Hook is an area of unique natural and man-made beauty. This natural beauty has been admired for centuries and has inspired many from all walks of life to settle here and leave their stamp upon the landscape. These ranged from Dutch and Palatine farmers and businessmen who built sturdy farmhouses to financial magnates who oversaw the construction of large riverfront estates with extensive landscaped grounds in the romantic style.

The attractiveness of the juxtaposition of the active farms with the open and wooded areas, the interest and beauty of the historic buildings--particularly residences in portions of Barrytown and Annandale hamlets and the large estates bordering the river--and the views of the majestic Hudson River itself and west bank--including vistas of the Catskill Mountains--have all long been recognized as worthy of preservation.

Historically the Town of Red Hook has been a rural area intermixed with some more intensive residential and commercial activity which is focused in and around the Villages of Red Hook and Tivoli. Farms devoted to vegetable and fruit growing, raising of cattle and milk production, and to horse breeding are important features in the economic life of the Town. In addition, the visual and scenic appeal of these farms provides a sense of desirable openness and well-being to residents, business people and tourists.

Until the very recent past, the Town had been on the periphery of areas where major development had occurred. Largely because of economic activity spurred by the success and expansion of IBM in the Kingston area, Poughkeepsie and southern Dutchess County, residential and commercial growth had centered in those areas. While the Kingston-Rhinecliff Bridge brought increasing numbers of people to and through the Town and Red Hook met the residential needs of many IBM employees, growth in the Town of Red Hook was relatively slow.

The population of the Town including the Villages of Red Hook and Tivoli increased from about 7,550 in 1970 to 8,350 in 1980. Since the population of the Village of Red Hook increased by less than 20 people and the population of Tivoli decreased slightly during this ten year period, the bulk of the growth was in the unincorporated area of the Town. In the last several years, the unincorporated area of Red Hook has been experiencing more intense development pressures. These development pressures have included current and proposed projects on both sides of the river that could directly or indirectly impact local residents.

Currently the only large scale residential development proposal in the coastal area of the Town is a proposed subdivision on a 50+ acre parcel at the northeast corner of the intersection of Routes 199 and 9G. Conventional subdivision has increased on Town

parcels outside of the coastal area in recent years. Also of concern are several other large parcels of land in Red Hook that could be subject to development pressures, a proposed Dutchess County landfill site located outside the coastal area which could have an impact on the Stony Kill and Tivoli North Bay and the expanded programming at the County Fairground in Rhinebeck that has attracted increasing numbers of visitors to the Towns of Red Hook and Rhinebeck.

Town residents and officials have repeatedly voiced concern about plans for proposed projects in the area which they feel could be detrimental to Red Hook from environmental and scenic points of view. These include a proposed coal port in the Kingston area, a Hudson River water skimming plan, a proposed Con Edison power plant on the Columbia/Dutchess border, and a hazardous waste disposal facility.

Town residents and officials are particularly concerned about the Consolidated Edison power plant proposed for the Columbia/Dutchess border. While it is uncertain whether the plant itself, if constructed, would be built in Columbia or Dutchess County or straddling the border, it is possible that rights-of-way currently owned by Central Hudson in Red Hook's coastal zone would be utilized for transportation of cooling water and/or fuel as well as for the placement of power lines.

Fortunately, Red Hook has a rich history of citizens and officials caring about their community. Since the 1970's, several groups have been formed, studies have been undertaken and efforts have been made to preserve and enhance the natural and man-made environments of Red Hook and adjacent towns in the Mid-Hudson Valley and to respond in a coordinated manner to what were considered development pressures and threats to the area's scenic, historic and environmental resources. A list of these groups, studies and efforts are included in the Appendix under Major Initiatives Undertaken. The preparation of the Local Waterfront Revitalization Program represents the latest in this series of steps.

The following portion of Section II is composed of various inventory subsections relating to current conditions within the Town and an analysis of issues or areas of concern, problems and opportunities. Some of the issues presented are of a general nature and others express more specific concerns.

B. EXISTING LAND USE

The coastal area of the unincorporated portion of the Town of Red Hook is primarily a rural and estate area, separate from the commercial and higher density residential areas that have been centered in the villages of Red Hook and Tivoli. The small hamlets of Annandale and Barrytown provide areas of somewhat more dense residential development.

Barrytown was once a bustling landing area. Its dock, businesses including ice houses, and railroad station attracted residents, tradespeople and travellers. Most commercial activity was brought to a halt in the early twentieth century with a fire in the waterfront area. Annandale was the location of an early church which became the site of Bard College. It included a few commercial uses over the years which are now within the Montgomery Place restoration area.

1. Agriculture

The agriculture in the coastal area of the Town is significant as an important economic resource for the community and as an important visual resource for both residents and visitors (see Map 2, Existing Land Use). Currently the primary agricultural activities in the Town are fruit and vegetable production, raising of cattle and milk production, and horse breeding.

Many of the farms within the coastal area of the Town have been included within the state agricultural districting program (see Map 13, Major Development Considerations). In this program, enrolled farmers annually grossing over $10,000 in agricultural activity are able to benefit from reduced land assessments, and thereby a reduction in taxes, in return for a multi-year (at least eight year) commitment to remaining in farming. In addition, some owners of horse farms have been able to obtain tax benefits from horse breeding.

2. Higher Density Residential

Residential uses--including homes on relatively small lots, i.e., homes on generally less than one-half acre in the category designated as Hamlet --are found primarily within the hamlets of Barrytown and Annandale, as well as in areas adjacent to the Village of Tivoli. The Village and hamlet areas are quite clearly defined because of the extent of relatively undeveloped (i.e., agricultural or vacant, wooded or wetland) areas surrounding the built-up areas.

3. Rural/Estate Residential

The Rural/Estate Residential category on the Existing Land Use map shows large estates lining the river, generally west of River Road. The Land Use map shows the location of the house and accessory building(s) and some surrounding land in the residential designation, but the major portion of the estate properties are shown as vacant/wooded or agricultural. Scattered houses away from Tivoli and the hamlets, but along Route 9G, are also included in this category.

4. Vacant

More than fifty percent of the land in the coastal area of the Town is considered vacant. The vacant areas include, wooded lands, wetland and old fields areas. These vacant, wooded and wetland areas serve as important visual resources complementing the agricultural areas, the historic structures and the beauty and open space provided by the Hudson River. Many of these areas, particularly those within the Tivoli Bays Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve are used or studied for research and educational purposes. In addition, they serve an important ecological function in providing watershed areas and habitats and breeding areas for plants, fish and wildlife. Maintained in their natural state, the brush, wooded and wetland areas serve to assist in flood and erosion control, air quality amelioration and noise absorption.

5. Commercial

Most commercial uses in the Town are found within the Villages of Red Hook and Tivoli; however, five commercial sites, located along Route 9G, have been identified within the coastal area.

6. Public/Quasi-Public

Public/quasi-public uses form another major land use in the coastal area of Red Hook. Portions of the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve and the lands of Bard College, Montgomery Place and the Unification Church that are not wooded or wetland areas or in agricultural use are shown in the public/quasi-public category. Also shown in this category are functioning churches, cemeteries and the Barrytown Post Office.

7. Recreation

Only two sites in the coastal area of the Town are listed as recreation sites: the Red Hook Boat Club in Barrytown and a portion of Clermont State Park at the northern edge of Red Hook. Other properties with recreational facilities listed on the Recreation and Open Space Inventory are included in public/quasi-public or commercial categories.

8. Water-Related Uses

At this time, the primary publicly available locations for water-related uses are the landing areas within the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve. The DEC has constructed two small landings for the hand-launching of boats, primarily for

research, education and non-consumptive nature recreation, as well as for fishing and duck hunting, with small adjacent parking areas, both on the east side of North Bay: one near Cruger Island Road and the other near Ward Manor Road. At low tide, boaters can go under railroad bridges to get to the river. While most of these smaller, hand-launched boats are not suitable for extended river stays, some canoes are used for river travel.

A primary private water-related use is the Red Hook Boat Club in Barrytown. Facilities are available here for docking, launching and on-land storage of power boats, primarily for recreational use. One commercial fisherman has utilized this launch site for spring sand fishing and ice boaters use it in the winter.

Recreational fishermen with and/or without specific permission fish off the shores of the Saw Kill and other streams at a variety of locations and enter the areas primarily across private property. Moreover, fishermen and duck hunters utilize many cove areas under similar conditions. The Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve site is available to fishermen and duck hunters who have acquired the appropriate State fishing and hunting licenses and who comply with State area use regulations (soon to be promulgated), without specific permission; however, off-road vehicles cannot be used except on roads. A legal, but nonfunctioning grade crossing exists on Cruger Island Road since the railroad bed has been raised significantly above the level of the road.

Property owners of landing sites included in the inventory subsection on Coastal Access Points may launch or dock boats at those locations for private recreational use, but these activities are generally limited by the need to cross the railroad tracks at grade level except in Barrytown where the Barrytown Bridge gives access to land west of the railroad tracks. Bridges are also located at two estates in the southern portion of the coastal area, the pedestrian bridge at Mandara and the vehicular bridge at Rokeby; however, these bridges are presently in states of disrepair. (Town residents may also use a functional grade crossing in the Village of Tivoli. In addition, a legal, but non-functional, grade crossing exists at Sycamore Point in Tivoli.)

9. Water-Enhanced Uses

All properties not dependent on the water but located adjacent to and with views of the Hudson River or any of its tributaries can be considered water-enhanced uses. The largest percentage of land adjacent to the river remains in estate properties. Most of the estates are currently in residential use; however, some are in institutional uses such as Bard College and the Unification Theological Seminary. Montgomery Place has been acquired by Sleepy Hollow Restorations which plans to open the mansion and grounds for public viewing.

10. Analysis of Existing Land Use

a. Preservation of the rural/low density qualities of the Town. Preservation of agriculture within the coastal area of Town is important from an economic perspective, as a means of protecting an open space resource and as a scenic resource. In order to insure the continuation of an important element in the Town's economy and to preserve the rural qualities of the Town, it is important to have viable agricultural activities. However, local and national economic conditions have raised doubts as to whether or not these activities can be successful through the uninhibited operation of the free market system. Currently the agricultural district program (preferential assessment) provides some financial relief to farmland owners and farmers in the Town. (See Map 13, Development Considerations, showing lands in Agricultural Districts.)

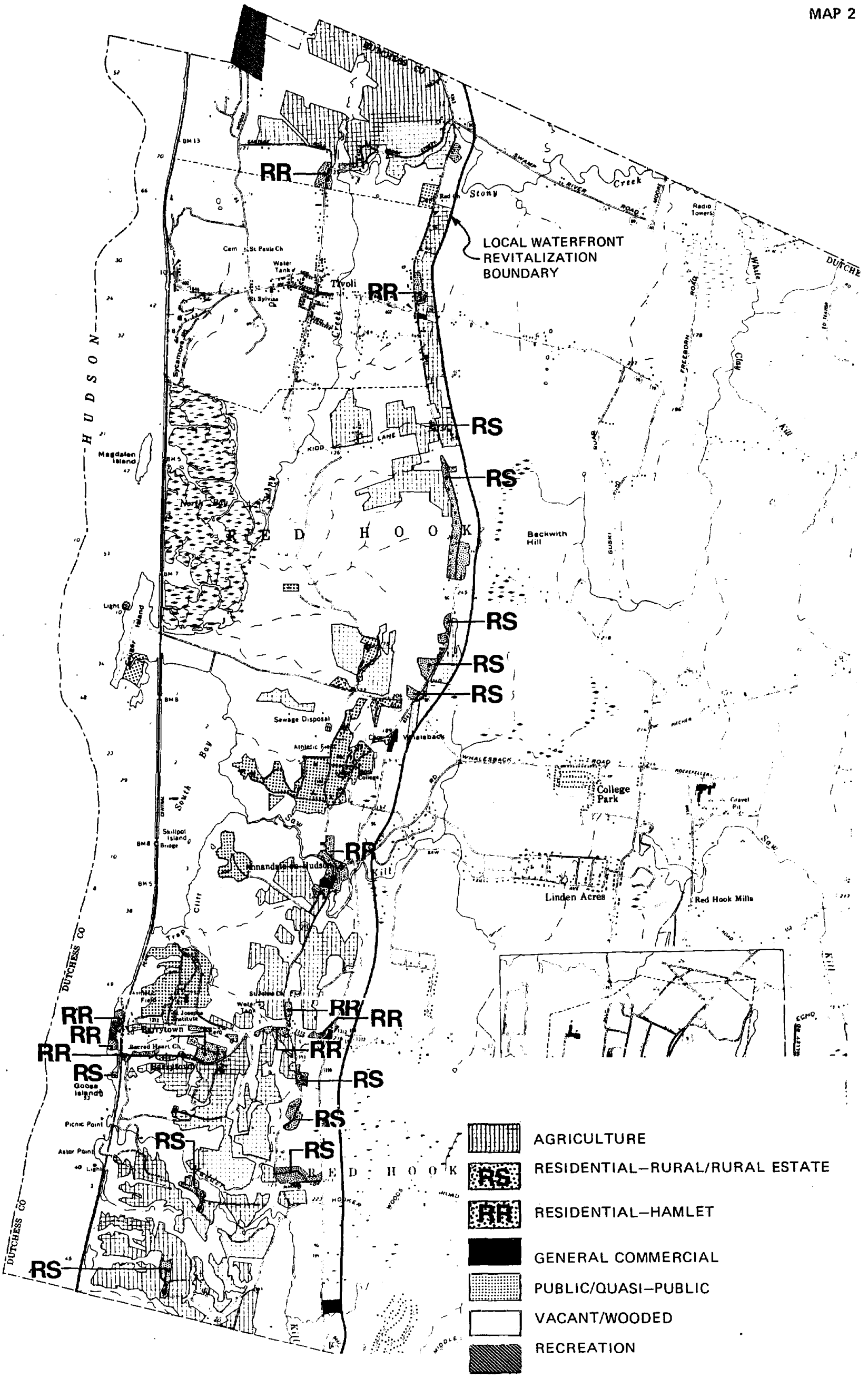
Several Red Hook farm owners have renewed participation in or joined the County Agricultural District, signing up for a multi-year commitment to agricultural activities. As land values increase, and as taxes on agricultural land rise and pressure for residential and/or commercial development increases, it may become more and more difficult to keep land in agricultural uses. Rollback penalties which are part of the agricultural districting program may serve as a deterrent but not as a bar to development. In the recent past, some newer agricultural activities in the coastal area such as raising horses appear to be adding other positive dimensions to the viability of agriculture in the Town and need to be encouraged.

The rural/low density appearance and qualities of the Town could be threatened by proposals for development on estates and large parcels of land. How, when and where the parcels are developed, how much land will be preserved for agriculture and/or open space, how development is sited on a property relative particularly to road frontage and preservation of natural features and whether an agricultural and/or open space greenbelt will be maintained around the Village cores will all affect the rural open space appearance and qualities of the Town and Village.

Because of the creation of the Tivoli Bays State Nature and Historical Preserve and the inclusion of this site with the Hudson River National Estuarine Sanctuary and Research Reserve, a significant portion of the land in the coastal area of the Town will be preserved in its natural state; however, much of this area is currently not visible from public roads.

While there has been historically a significant difference between the level of development within the hamlet and villages and the land in the

MAP 2



EXISTING LAND USE

Local Waterfront Revitalization Program

Town of Red Hook, New York

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remainder of the coastal areas of the Town, the distinction between the more rural and Town/hamlet areas may become more difficult to maintain.

Increased pressure over time for residential and commercial development in the Town will make it necessary to take deliberate steps to maintain the rural open appearance of the Town and to continue the concentration of more intense uses in or near the villages and hamlets.

b. Water-Related and Water-Enhanced Uses

At this time publicly-available water-related uses are limited, particularly for boat docking and launching and ice boating (see also discussion under Coastal Access Points). Future proposals for development of estate properties and/or landing sites by public or private interests may include plans for water-enhanced uses and some water-related uses. An important consideration is retaining, enhancing and creating water-related uses such as marinas and maintaining, enhancing and/or creating public access to and use of any new or existing facilities particularly for use of recreational and commercial boaters and fishermen and ice boaters. Facilities should be developed for launching of non-power boats directly into the river.

C. PHYSICAL FEATURES

1. Geology, Topography and Soils

Bedrock in the coastal portion of the Town is Austin Glen graywacke and shale. The Austin Glen formation consists of coarse, dark gray sandstone or fine-grained conglomerate composed of firmly-cemented, rounded fragments. The prominent cliffs that rise at Astor Point are mostly sandstone. Elevations in the coastal area of the Town generally range from mean tide level to 200 feet above mean tide level, with much of the area at elevations between 50 and 150 feet.

Most of the coastal area of the Town consists of soils with a high water table because the clay component is impermeable and the water sits on top of it. This necessitates limitations on allowable development densities without the provision of central sewer and water (see Map 13). Soil materials are comprised of glacial deposits including till, lake clay and terrace sand as well as recent deposits of alluvium, tidal marsh sediments and fill. Many of the soils in the Town are suitable for various types of agriculture (see Map 3, Natural Resources). Moreover, the Hudson clay and sand soils tend to intermix near the river forming sloping bluffs which are highly erodible and often subject to slumping and sliding. Fill has been utilized to form the railroad bed. The bulk of the coastal area is composed of lacustrine deposits, generally less than fifty feet thick. These

deposits are stratified sediments consisting primarily of silt and clay that had been deposited in glacial lakes. The permeability of the lacustrine deposits is low, and water yields from these deposits is also low. In these areas, water supplies must be obtained from deep wells into underlying bedrock.

A very small portion of the coastal area near the hamlet of Annandale contains thick sand and gravel outwash deposits which could yield more water than lacustrine deposits.

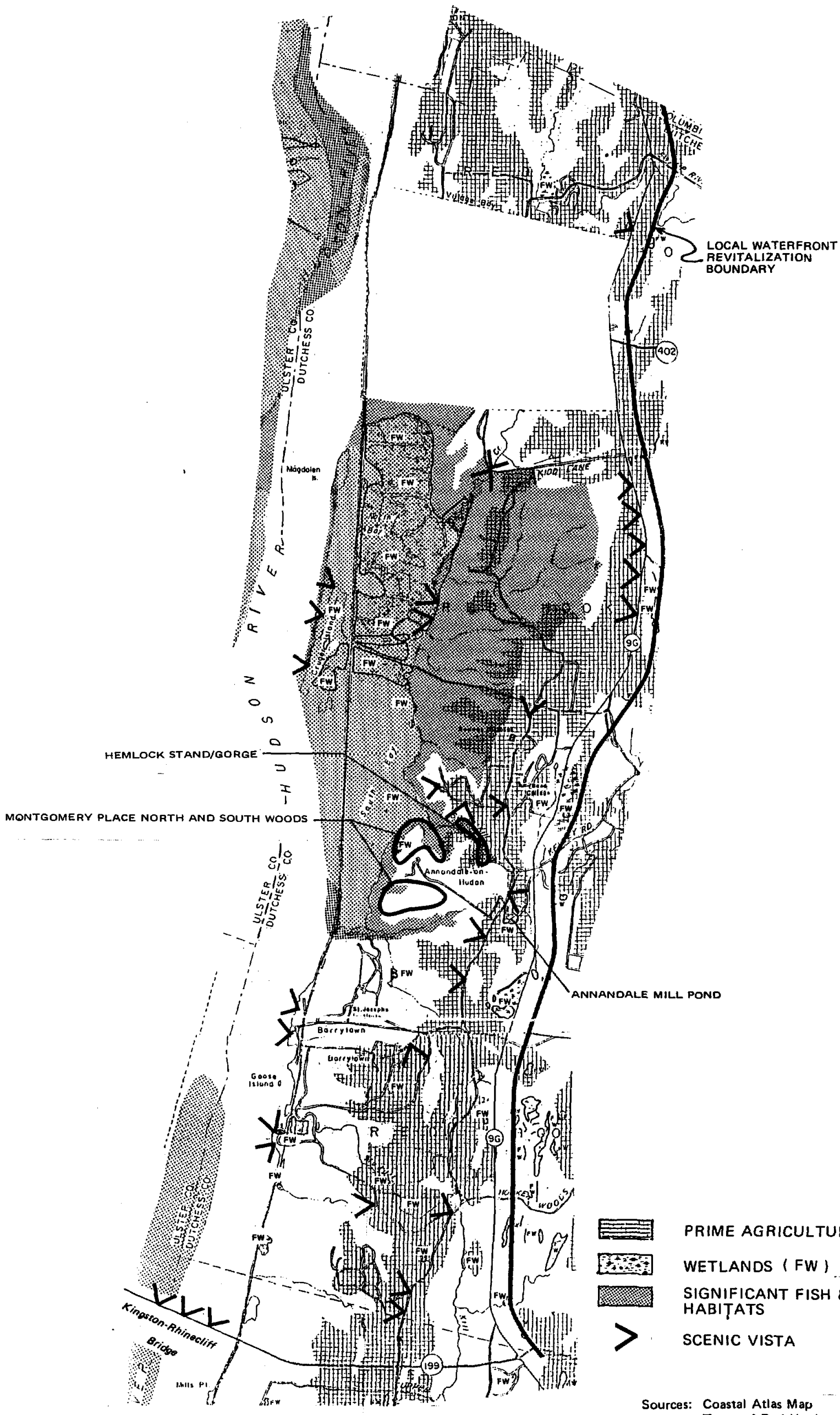
2. The River

The Hudson River is a 315 mile river that flows from the Adirondack Mountains in the northern part of the State to New York City. Below Troy, the Hudson is a large tidal river (estuary) which is navigable at sea level and its flow reverses with the phase of the tide. Tidal freshwater is available in Red Hook. The river, in fact, serves as the water source for the Village of Rhinebeck, the hamlet of Rhinecliff and some other properties in the Town of Rhinebeck and the Port Ewen area of the Town of Esopus, but it is currently not used as a water source in Red Hook.

The western boundary of the Town is the mid-line of the Hudson River. This river provides many opportunities for residents and visitors. The Hudson offers a unique and an essential open space as well as a scenic area that is a major visual focus within the westernmost coastal portions of the Town and the hamlet of Barrytown. The scenic attributes of the river are further discussed in the sections on historic and scenic features and scenic roads and scenic vistas. Its presence is both overpowering and calming and the benefits to residents of the Town are manifold, although sometimes insufficiently appreciated, primarily because in most locations in Red Hook it is difficult to gain views of and/or access to the river. The Hudson provides a travelway for long and short distance commercial and recreational boating and fishing. At this time, the primary boat docking site in Red Hook is a private boat club in Barrytown, but possible public acquisition or use of a landing area or areas in Barrytown may increase opportunities for recreational boating and fishing activity and excursion boat tourism in the Town.

The Hudson, within the coastal area of the Town, also provides a deep water estuary system unique in the northeastern United States. It serves as a habitat area for the short nose sturgeon (an endangered species) and as a spawning, nursery and feeding area for the American shad, striped and largemouth bass. Two deep water areas within the Town portion of the river have been categorized as significant habitat areas by the New York Department of Environmental Conservation. (See Inventory section on Significant Habitats.)

MAP 3



Sources: Coastal Atlas Map
Town of Red Hook
Waterfront Advisory Committee

(See Map 4 - Streams/Creeks and Coves)

NATURAL RESOURCES INVENTORY

Local Waterfront Revitalization Program

Town of Red Hook, New York

0 500 1000 2000ft

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3. Islands

Two sizable islands and some smaller islands are found offshore in Red Hook.

The major island, Cruger Island, contains some 32 acres (or more if you include the marsh areas discussed below) plus the smaller South Cruger Island (2.2 acres) and is publicly held and included within the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve. It is undeveloped, but used primarily for recreational and educational purposes by hunters, fishermen, birdwatchers, boaters, hikers, picnickers and researchers.

Cruger Island is valuable ecologically. It contains intertidal marshes, tidal swamp areas and deciduous forest areas, and is an outstanding bird and wildlife habitat. The island is known for warbler migrations and as a breeding area for cerulean warblers.

The Island has been connected to the mainland by a causeway since the early 1800's. A road crossing railroad tracks can be traversed on foot. The property was purchased by New York State DEC from Central Hudson Gas and Electric Company which retained a corridor along Cruger Island Road.

Magdalen Island is an island of more than eight acres adjacent to the North Bay which recently became part of the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve. It contains deciduous woods and wildflower populations.

The smaller islands include: Goose Island, a small, thickly vegetated, privately owned island southwest of Barrytown which is not used; Chandler Island, a small privately owned island south of Astor Point used by the Coast Guard as a site for a permanent navigation beacon; and Skillipot Island, a privately-owned rock outcropping in the middle of Tivoli South Bay.

4. Freshwater Wetlands Affected by Tides

These habitats are among the Town's most significant scenic and biological resources. The wetlands are found in the natural and railroad-created coves of the Town, supporting extensive and varied vegetation and animal life.

In his 1978 report Hudson River East Bank Natural Areas, Clermont to Norrie, Erik Kiviat lists the following cove areas from north to south within the Town (see Map 4): Tivoli North Bay, Cruger Island South Marsh, Tivoli South Bay, Mudder Kill Mouth, Rokeby Cove and Mandara North Cove. Of these, the Tivoli Bays Coves and Cruger Island South Marsh area, which have been largely

acquired by the New York State Department of Environmental Conservation or are held by the Office of General Services as the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve, are considered the most ecologically significant freshwater wetland areas in the Town as well as in Kiviat's study area.

The Tivoli Bays area has also been designated as an Experimental Ecological Reserve by the privately-held Institute of Ecology in Arlington, Virginia, which studies areas suitable for long term ecological research. It has been designated as a Significant Natural Area by the Dutchess County Environmental Management Council and as a Significant Habitat Area by the New York State DEC (see Inventory section on Significant Habitats). It is under consideration by the U.S. National Park Service as a potential National Natural Landmark.

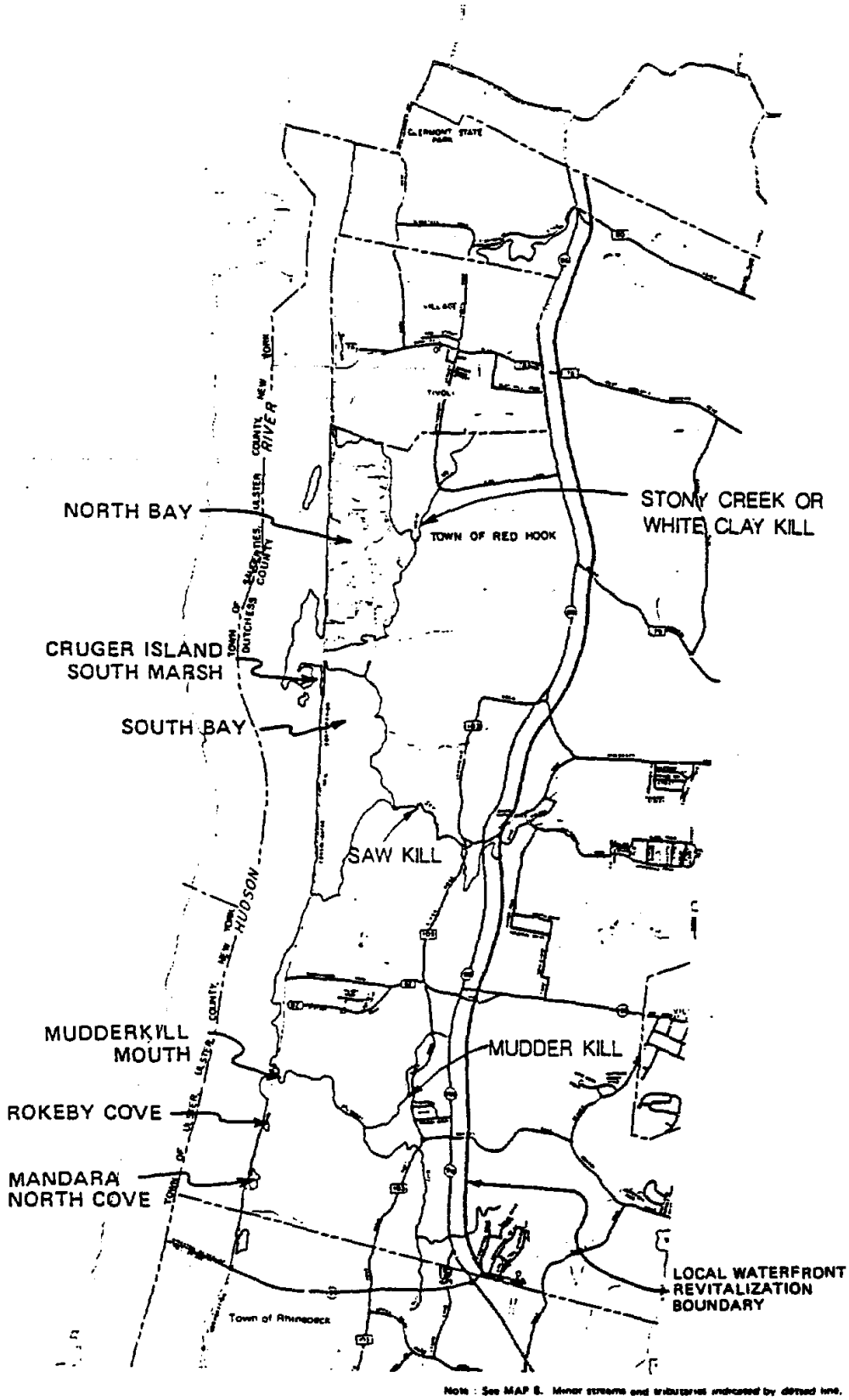
The 1982 designation of the Tivoli Bays area as one of four Hudson River National Estuarine Sanctuary and Research Reserve areas by the Federal Office of Coastal Resource Management, Division of Marine and Estuarine Management in the U.S. Department of Commerce, underscores the significance of this high quality wetland area. The State of New York currently owns 751 upland acres, with an additional 728 acres in publicly owned underwater lands and a 53 acre easement. The Department of Environmental Conservation is responsible for management of the Preserve/Sanctuary and Research Reserve. (See Inventory section on Significant Habitat areas for further description of Tivoli Bays wetlands.)

Development within the estuarine area will be minimal, in keeping with the preservation, research and education purposes of the Preserve/Sanctuary and Research Reserve. Two boat launches with nearby parking areas have been constructed and a 1,000 foot interpretive walking trail will be developed. DEC contributed funds to renovate the Bard College Field Station on South Bay for shared use as the research center for the Preserve/Sanctuary. Renovations were completed in 1986.

The Mudder Kill mouth wooded swamp needs protection from changes in its watershed area including the Kill itself and Snyder Swamp in Rhinebeck. Rokeby Cove and Mandara North Cove are tidelands, chiefly of local interest.

5. Freshwater Buffer

Extending up from the river, wooded areas with steep slopes form a framework around the freshwater wetlands (see Map 13). This area, called the freshwater buffer, is here and there cut with streams and drainageways. Much of this area



Note : See MAP 5. Minor streams and tributaries indicated by dotted line.

STREAMS/CREEKS AND COVES/FRESHWATER-TIDAL WETLAND AREAS

Local Waterfront Revitalization Program

Town of Red Hook, New York

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is underlain with clay or sand soils that are subject to slumping and sliding if vegetation is removed. The forested/vegetated slopes provide habitat for wildlife. There are also some portions of the buffer areas that are highlighted with cliffs and promontories such as those found at Astor Point. Forested areas will be further discussed in a following subsection.

6. Freshwater Wetlands/Standing Water Areas

Many isolated wetlands exist throughout the coastal area of the Town (see Map 3). The open water areas surrounded by varied wetland vegetation and in some cases wooded areas are valuable from ecological and scenic points of view. Annandale Millpond was identified in Kiviat's 1978 report as a freshwater wetland of special value. The pond, some four acres in size, was formed by damming a portion of the Saw Kill during the past 250 years (see Map 3).

7. Streams/Kills

Three primary streams, the Stony Creek, the Saw Kill and the Mudder Kill flow across the coastal area of the Town (see Map 4). Stony Creek, which flows into the Tivoli North Bay is rich in fish species. It receives treated sewage from the Tivoli Sewage Treatment plant and sometimes is nearly dry in the summer. The Village of Tivoli was given permission to periodically withdraw water from Stony Creek.

The Saw Kill is classified as a Class B stream which indicates that the waters are usable for "primary contact recreation and any other uses except as an untreated water supply for drinking, culinary or food processing purposes. As a Class B stream, the Saw Kill is currently the only stream in the Town subject to Stream Protection Act regulations (ECL Article 15). It is also rich in fish species and upper sections serve as a duck habitat. Bard College uses water from the stream (with treatment) for its water supply and the lower section of the stream has been used for fishing and swimming. The Town is requesting that the DEC reclassify the Saw Kill to a Class "AA" stream and the Village of Tivoli is requesting that DEC reclassify a portion of the Stony Creek "AA" in order to further protect the water quality of these streams.

The Mudder Kill, which rises in Snyder Swamp in Rhinebeck, is a small perennial stream that recedes to a trickle in dry summer. It has been classified by the DEC as a "D" stream. The Dutchess County Environmental Management Council has named the Mudder Kill, together with Snyder Swamp and Ferncliff Forest located in Rhinebeck as significant natural areas. This Kill was included in Kiviat's 1978 report and was the subject of a 1982 Kiviat study, The Mudder Kill and Snyder Swamp.

8. Forested Areas

Many stands of mature hardwood trees are dispersed throughout the Town. Among the most significant of the forested areas are the north and south woods in the vicinity of the South Tivoli Bay that contain valuable hemlock and hardwood forests (see Map 13). These forests, which have not been substantially logged since the 1700's, may have some protection from their nearness to the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve. The Montgomery Place North and South Woods which include about 100 acres, generally within the estate purchased by Sleepy Hollow Restorations, contain important habitats for "old growth" plant and animal species. According to the Dutchess County Environmental Management Council, the forested areas which they named (together with the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary) as Significant Natural Areas are recognized as the oldest forestland in Dutchess County.

9. Significant Coastal Fish and Wildlife Habitats (see Map 3.)

North and South Tivoli Bays. North and South Tivoli Bays encompass approximately 1,200 acres on the eastern shore of the Hudson River, one half mile south of the Village of Tivoli in the Town of Red Hook, Dutchess County (7.5' Quadrangle: Saugerties, N.Y.). The habitat area includes tidal freshwater marsh, flooded woodland, bays, shallows, two streams, and adjacent uplands dominated by hardwood forest and fallow fields. The fish and wildlife habitat also includes Cruger and Magdalen Islands. Much of the upland area is owned by the New York State Department of Environmental Conservation as a Wildlife Management Area; the wetland and riverine areas are under the jurisdiction of the State Office of General Services.

The North and South Tivoli Bays habitat is ecologically unique as the largest freshwater tidal influenced bay and wetland complex surrounded by undeveloped land on the Hudson River. This area is one of four components of the Federally designated Hudson River Estuarine Sanctuary. A tremendous variety of fish and wildlife are found in the area, including a large number of relatively uncommon species.

Tivoli Bays are important to a variety of fish species in the Hudson River as feeding, spawning and nursery areas. Several commercially important fish species use the bays and the mouths of Stony Creek and the Saw Kill for spawning and feeding. These include striped bass, alewife and blueback herring. Common freshwater species using the bays include largemouth bass, smallmouth bass, white perch and various minnows. Species that appear to be regionally rare that have been found in the bays include American brook lamprey, central mudminnow, northern hogsucker and bridle shiner. The shortnose sturgeon (E)

may feed in the tidal channels and river shallows, but this has not been confirmed. An extremely large population of snapping turtles exists in North Tivoli Bay.

Tivoli Bay supports breeding populations of least bittern (SC), American bittern, Virginia rail, marsh wren (formerly long billed marsh wren), and in some years, sora rail, common moorhen (formerly common gallinule), and occasionally king rail. Many species of waterfowl use the area during the spring and fall migration periods for resting and feeding, including both dabbling ducks in the marshes, and diving ducks in he river shallows. The osprey (T) was reportedly nesting in the area in the late 1950's, and is regularly seen here during migration. The Museum of the Hudson Highlands is planning to construct experimental nest platforms for osprey in this area. The bald eagle (E) is an occasional visitor. Spotted turtle (SC) and map turtle are also found in the area.

Several rare plant species occur in Tivoli Bays wetland complex. These include the heartleaf plaintain (proposed for Federal endangered status), golden club, ovate spikerush, Parker's pipewort, Eaton's bur-marigold, and estuary beggar-ticks.

Waterfowl hunting and muskrat trapping have been traditional outdoor recreational activities at Tivoli Bays for years. Fishing for striped bass and large and smallmouth bass in the bay area is enjoyed by the local populace. Birdwatchers from throughout the Hudson Valley region visit this area. These activities in combination with nature study produce an estimated North and South Tivoli Bays 6,600 days of wildlife related recreational use each year. In addition, scientific research conducted on estuarine ecology at Tivoli Bays is of State significance.

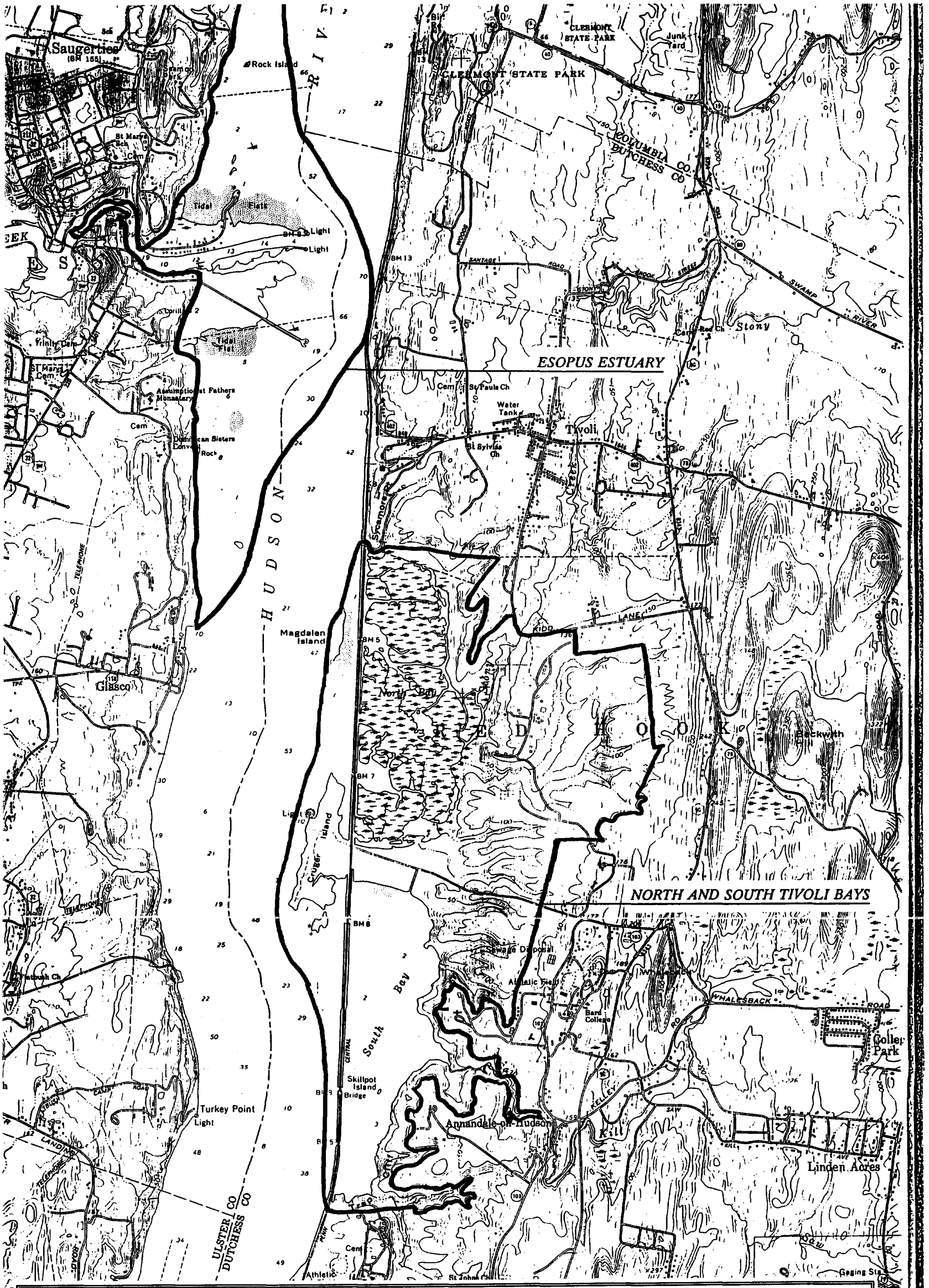
Under New York State Department of Environmental Conservation management, it is anticipated that proposed access improvements and trail development will increase the recreational use in the area. Ongoing ecological research at Tivoli Bays (Bard College Field Station and Experimental Ecological Reserve) has attracted scientists and students from throughout the State. (Refer to Inventory and Analysis Appendix).

Esopus Estuary. Esopus Estuary is located just east of the Village of Saugerties in the Town of Saugerties, Ulster County and in the Town of Red Hook, Dutchess County (7.5' Quadrangle: Saugerties, N.Y.). Esopus Estuary is an approximate 700 acre area that includes: the lower portion of Esopus Creek; tidal marsh and littoral zone areas; and a deepwater section of the Hudson River. The tidal portion of Esopus Creek is heavily developed on both banks. The developments include residences, marinas, and industries.

Esopus Creek is one of the primary freshwater tributaries of the Hudson River. Esopus Creek, while minimal in accessible mileage to Hudson River fish, is extremely important to the fisheries resource. The creek, from the mouth to the first impassable barrier (1.3 miles), serves as a spawning ground, nursery area, and feeding area for striped bass, white perch, shad, alewife, blueback herring, smelt, and many resident freshwater species including largemouth and small mouth bass. The littoral zone of the Hudson River adjacent to the creek mouth is also an important spawning ground for shad, and serves as spawning, nursery, and feeding areas for striped bass, white perch, herring, smelt, and most of the resident freshwater species. The adjoining deepwater area of the Hudson serves as post spawning and wintering habitat for shortnose sturgeon (E).
Fishing pressure is heavy on Esopus Creek during the entire season. Several blackbass (smallmouth and largemouth) fishing tournaments are held here each summer, with participation from residents throughout the Hudson Valley. There is also important recreational fishing for striped bass in the area. Tidal marshes and shallows in the estuary also provide resting and feeding areas for migrating waterfowl, including black ducks and mallard. This results in significant hunting pressure from residents of the lower Hudson Valley region. (Refer to Inventory and Analysis Appendix)

The Flats. The Flats is located in the middle of the Hudson River, roughly between the hamlet of Barrytown and the City of Kingston, in the Town of Ulster and City of Kingston, Ulster County, and the Towns of Red Hook and Rhinebeck, Dutchess County (7.5' Quadrangle: Kingston East, N.Y.). The fish and wildlife habitat is an approximate four and one-half mile long underwater ridge, most of which is shallow (less than 10 feet deep at mean low water), freshwater, intertidal mud flats, and subtidal aquatic beds (predominantly wild celery and Eurasian water milfoil). The Flats is bordered to the west by the Hudson River navigation channel, resulting in potential habitat disturbance from periodic maintenance dredging. The Flats is one of the largest contiguous areas of shallow, freshwater, tidal flats in the Hudson River. Areas such as this are extremely valuable fish and wildlife habitats, and are not found in other coastal regions of New York State.

The Flats is one of the primary Hudson River spawning grounds for American shad. Between mid-March and June, adult shad concentrate between Kingston and Coxsackie, and spawning occurs primarily on extensive flats, shoals, sandbars, and shallow areas near the mouths of tributary creeks. These fish may move into adjacent deeper areas while tidal currents are strong. Reproduction by shad in The Flats area supports much of the commercial gillnet fishery for this species on the Hudson River, which is one of the largest such fisheries in the U.S. The importance of the Flats is highlighted by the fact that it is the only area on the Hudson where commercial fishing is prohibited during the shad spawning period. The Flats also serves as spawning, nursery, and feeding habitat for



SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

Map 5a

North and South Tivoli Bays / Esopus Estuary (In part)

N

Miles

0 ½ 1

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capoblanco September 1990

GERMANTOWN-CLERMONT FLATS

NORTH AND SOUTH TIVOLI BAYS

ESOPUS ESTUARY

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

Map 5b

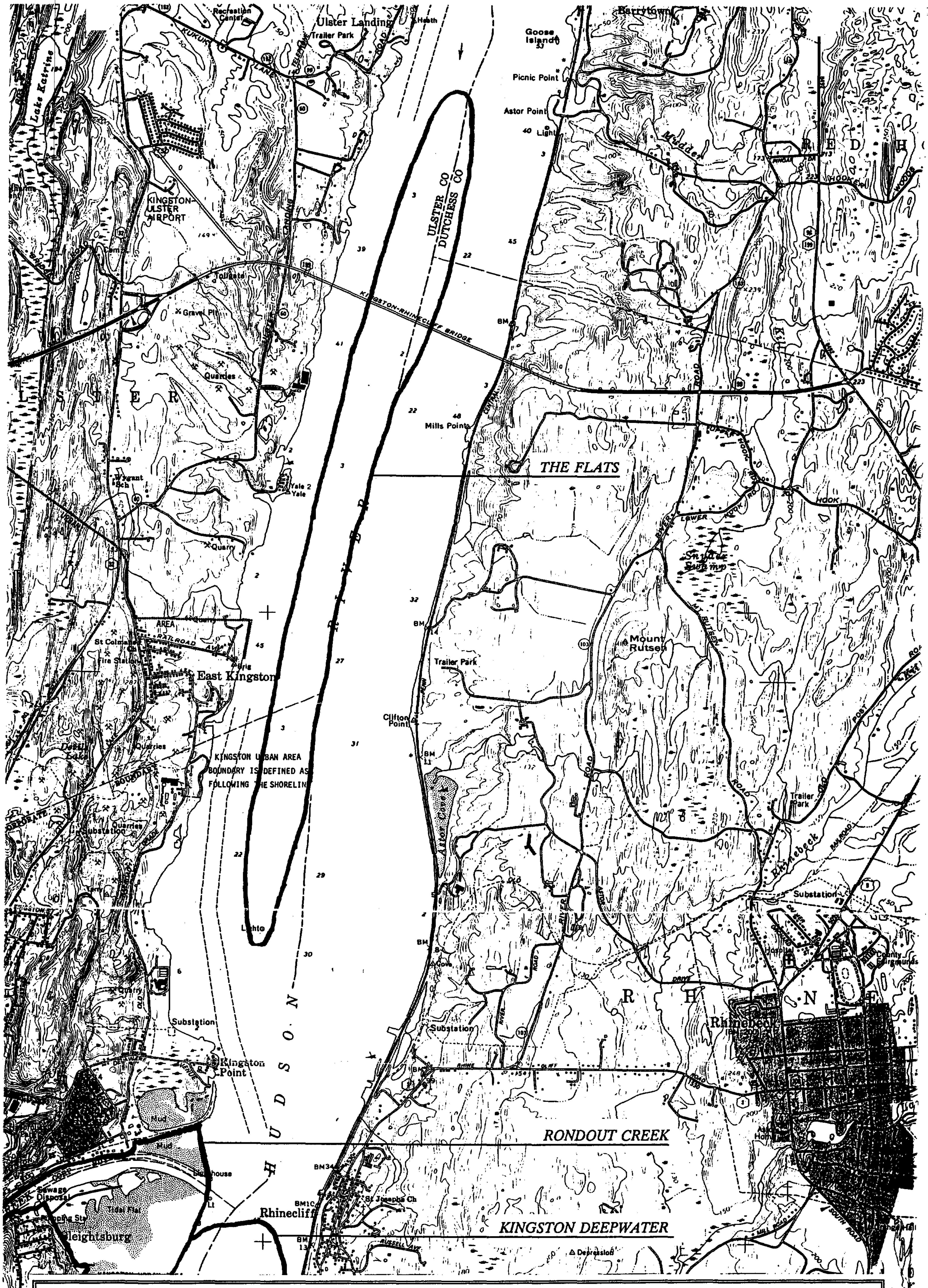
Esopus Estuary / Germantown-Clermont Flats (in part) / North and South Tivoli Bays (in part)

Miles 0 ½ 1

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco September 1990


THE FLATS
RONDOUT CREEK
KINGSTON DEEPWATER
Ulster Landing
Trailer Park
Recreation Center
Barrytown
Goose Island
Picnic Point
Astor Point
Light
Mudder Kill
KINGSTON-ULSTER AIRPORT
Tollgate
Gravel Pit
Quarries
KINGSTON-RHINECLIFF BRIDGE
ULSTER CO
DUTCHESS CO
Mills Point
Wygant Sch
Yale 2
Yale
Quarry
Mount Rutsen
Snyder Swamp
East Kingston
St Colman's Ch
Fire Station
Trailer Park
Clifton Point
Astor Cove
KINGSTON URBAN AREA BOUNDARY IS DEFINED AS FOLLOWING THE SHORELINE
Substation
Kingston Point
Mud
Tidal Flat
Sewage Disposal
Rhinecliff
St Josephs Ch
Rhinebeck
Hospital
County Fairgrounds
Trailer Park
Depression
HUDSON RIVER
ULSTER
RHINEBECK
RED HOOK

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

Map 5c

The Flats / Kingston Deepwater (in part) / Rondout Creek (in part)

Miles

0 ½ 1

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco September 1990

striped bass, white perch, and various resident freshwater species. Concentrations of the early developmental stages of several anadromous species occur in this area. Shortnose sturgeon (E) and Atlantic sturgeon may also use the area to feed (especially during slack water in late spring and summer), or as a resting area during riverwide movements, or as a slightly preferable habitat when water temperatures are warmer than in adjacent deeper waters (i.e., in early spring and fall). High catches of shortnose sturgeon occur in channels adjoining the Flats, particularly on the east side. The abundant fisheries resources in this area provide an excellent recreational fishery, attracting anglers from nearby portions of Ulster and Dutchess Counties.

Significant concentrations of waterfowl also occur in the Flats area. Dense growths of wild celery provide valuable feeding areas for many species of ducks, and are especially important during spring (March-April) and fall (mid-September-early December) migrations. Concentrations of diving ducks, such as scaups, redhead, canvasback, common goldeneye, and mergansers, are regularly found out in the Flats. During calm weather, this open river area is also used by dabbling ducks, including mallard, black duck, and blue-winged teal, and provides a refuge from hunting pressure in shoreline areas.

10. Flood and Erosion Hazard Areas

The flood hazard areas for 100 year floods in the coastal area of the Town as defined in the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency include all the freshwater-tidal cove areas along the Hudson referred to in the above subsection on freshwater tidal coves as well as the major portion of Cruger Island (with only a few higher portions on the island listed out of the 100 year flood zone) and the outer edges of Magdalen Island (with the center area of the island considered of minimal flooding risk). (See Map 13.) The areas along several creeks are also shown in the flood hazard zone including: (1) areas surrounding Stony Creek in the northern part of the Town which flows from the unincorporated area into the Village of Tivoli and then empties into Tivoli North Bay, and (2) areas adjacent to the Saw Kill which empties into Tivoli South Bay, and adjacent to one of its tributaries which flows southward into the Saw Kill parallel to Route 9G.

Stream bank erosion from tidal action or navigation on the Hudson is not considered a serious problem in Red Hook at this time, although it is elsewhere along the River and may be doing injury to seawalls and piers at Barrytown. The fact that the railroad has elevated the tracks along the river and maintains its roadbed, lessens tidal erosion impacts on other areas. However, the sloping to steep soils along the river bank are subject to slides or slumping and need to be protected.

11. Air Quality

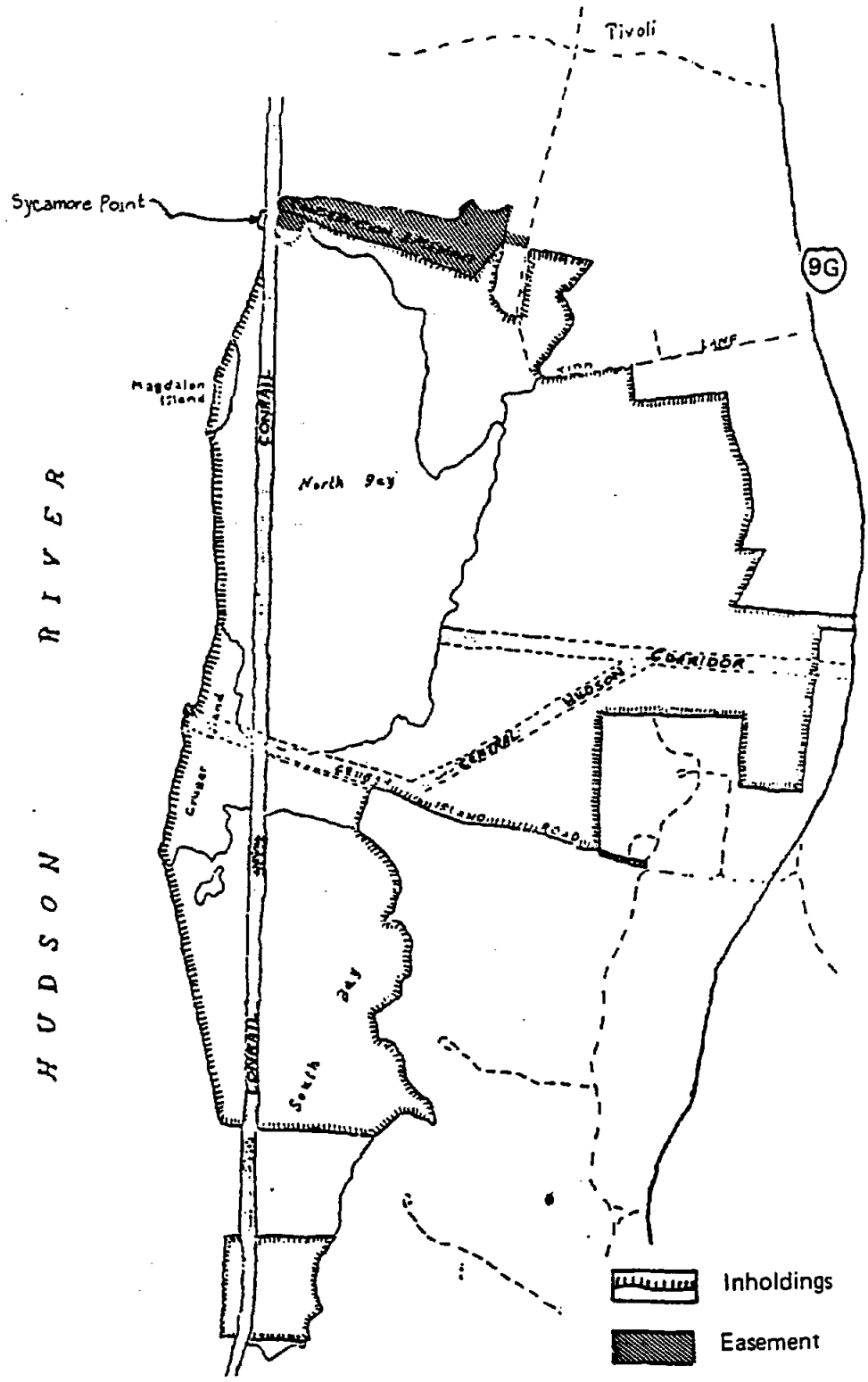
Air quality in the coastal areas of Red Hook has been classified as Level II as defined by 6 NYCRR Part 272.3, which is used for areas of "predominantly single and two-family residences, small farms and limited commercial services and industrial development." Although current monitoring stations are in Poughkeepsie, all results indicate that the air quality of the coastal portions of the Town conforms to all applicable standards.

12. Analysis of Physical Features

a. Protection of Ground and Surface Water. It is important to protect the Town's ground and surface waters against pollution from a variety of residential, commercial and industrial sources both within and outside the coastal area. These include contamination and runoff from inadequate septic systems, road salting and the use of herbicides, pesticides and/or fertilizers by farmers, home gardeners and railroad maintenance crews.

The Dutchess County Environment Management Council (EMC) named several closed landfills in the Town as suspected hazardous waste sites. The only site located in the coastal area is the Bard College landfill. Other sites identified by the EMC outside the coastal area that could potentially negatively impact ground and/or surface waters throughout the Town include: an old asbestos factory on Spring Lake Road in the eastern portion of the Town, the Red Hook Road and Gun Club site on the west side of Freeborn Road in the north central part of the Town, a metal finishing company landfill on Route 199 just east of Red Hook Village, a private dump used by a sanitation company on Metzger Road south of Red Hook Village and a sludge spreading site on Mill Road just north of a portion of the Saw Kill that is north of the Village of Red Hook. In addition, the former Town landfill site located just north of Rokeby Road and east of Route 9G near the coastal boundary which is now used as a sand and salt storage area by the State DOT needs to be monitored.

Any negative impacts on streams tend to affect coves and ultimately the river as well. Moreover, since the Saw Kill, Stony Creek and Hudson River serve as sources of drinking water as well as important ecological habitats, all efforts to protect and improve the quality of the water should be encouraged and activities which could threaten the quality of the water should be discouraged. The water quality of the Saw Kill had been monitored for many years by interested individuals and groups and there is much current interest in reestablishing public financial support for the program. Monitoring of the Saw Kill will attempt to examine several concerns of officials and residents including:



TIVOLI BAYS STATE NATURE AND HISTORICAL PRESERVE/TIVOLI BAYS NATIONAL ESTUARINE SANCTUARY AND RESEARCH RESERVE

Source : Draft Management Plan for Tivoli Bays Unique Area 1984 New York State Department of Environmental Conservation; DEC Survey Map 1985; Information from W. Aldrich and B. Blair.

Local Waterfront Revitalization Program

Town of Red Hook, New York

What are the impacts of the outfall from the Bard College sewage treatment plant and of the backwash from the Bard College water treatment plant?

Do the former asbestos processing plant landfill and other present or former landfill sites continue to impact groundwater and surface waters?

To what extent is effluent from septic systems in the vicinity of Bard College impacting the stream?

Recently the Department of Environmental Conservation initiated a reclassification of all surface waters in the State. The Town and State will review classifications to determine ways to best protect streams in the Town. Initially, the Town is recommending reclassifying the Saw Kill to a Class "AA" stream.

b. Protection of Environmentally Sensitive Areas. Environmentally sensitive areas of the Town need to be retained and protected from alteration and pollution.

Among the Town's most valuable natural resources are the various coves and freshwater wetlands affected by tides, particularly the Tivoli North and South Bay cove areas (see Impact Assessments for Significant Habitat areas), which are all being threatened to some extent by various development factors including pollution of streams, e.g., by runoff from road maintenance practices and agricultural uses, but they are particularly threatened by railroad maintenance practices. These include: (1) the spraying of the railroad bed and surrounding area with herbicides to limit the growth of vegetation near the tracks which may kill plant life in the cove wetland areas and threaten fish, animals and bird life and habitats; (2) the scattering of old railroad ties permeated with creosote or other wood preservatives which can both add chemicals to the coves that can harm plant, fish and animal life within the cove, and can block water passing through areas under railroad bridges thus interfering with tidal flow, and affecting plant, fish and wildlife in the cove areas, and (3) the pushing of vegetation from near the tracks into the coves which also may add to the herbicides or nitrogen levels of the coves.

Some concern also exists about leachate from the Bard College land fill, treated sewage from the College and pesticide and fertilizer run-off from neighboring farms.

While the Tivoli Bays area is protected from much alteration by its Preserve/Estuarine Sanctuary and Research Reserve status, it is still, unfortunately, subject to pollution from activities beyond its borders and along its interface with the railroad. In addition, since Central Hudson Gas and Electric Corporation retains a corridor which it owns in fee simple along Cruger Island Road, there is great concern that this road might be used to implement operations for a proposed power plant near the Dutchess-Columbia County border, e.g., as a route for providing or returning cooling water or for carrying fuel to, or electricity from, the site. Such activity would have a very detrimental effect on the natural environment of the Preserve/Sanctuary and Research Reserve.

The freshwater wetland standing water areas of the Town also need to be protected against pollution and encroachment or alteration, as do the several creeks, kills and forested areas of the Town.

D. HISTORIC AND SCENIC FEATURES

The beauty and value of Red Hook's historic and scenic assets cannot be overstated. The uniquely attractive visual character of the Town of Red Hook results from the combined impact of natural and manmade settings.

The historic and scenic features have inspired both residents and visitors for centuries. Contributing to this effect are the majesty of the Hudson River and the adjacent land forms, including the Catskill Mountains, cliffs and vegetated areas such as forests and wetlands; contributing as well are the scale and grandeur of the riverfront estates, with their architecturally interesting structures and expansive landscaped grounds. The riverfront estate areas have been complemented by rural historic structures and attractive farm fields. Since the 1970's several steps have been taken to recognize officially the historic and scenic features of the coastal areas of the Town of Red Hook and surrounding communities and to make efforts to enhance and preserve the natural and manmade environments. Some of the major steps that were undertaken are listed briefly below and others are included in subsequent subsections. A listing of major initiatives undertaken, i.e., goals and agendas formulated, actions taken and studies completed, is included in the Appendix.

The Hudson River Shorelands Task Force was established in 1976 with representatives from Hyde Park, Rhinebeck, Red Hook and Tivoli to act as a liaison between private property holders, institutional property owners and local, County, State, and Federal governments. Funding through private and public grants was obtained to gather additional data to continue documentation of the scenic and historic features of the area and to develop plans to aid in restoration and maintenance as well as to protect the visual environment. Working with local governments, State and Federal regulatory agencies

and private interests, the Task Force has strived to interpret the unique environment for the benefit of the Historic District, the Scenic District and the region as a whole.

The Hudson River Study Bill passed by the New York State Legislature in 1978 resulted in the report, Hudson River Valley-A Heritage For All Time. This in turn initiated the designation of the area in 1980 as the State's first Scenic District by the Commissioner of Environmental Conservation. The Mid-Hudson Historic Shorelands Scenic District, so designated, included not only the Sixteen Mile Historic District (discussed below) and the Clermont Estates Historic District, but also the river landings and pastoral lands connecting the river and the major state road paralleling the river. A Management Plan for the District was completed in 1983.

The scenic quality of the Scenic District is greatly enhanced by views across the Hudson River. The Scenic District Management Plan included a description of the Scenic Zone which encompasses the river west of the centerline and the river frontage extending 2,000 feet west of the high tide line (see Map 6). Thus portions of the Towns of Esopus, Kingston, Ulster and Saugerties, the City of Kingston and Village of Saugerties in Dutchess County and the Town of Catskill in Greene County are considered part of the viewscape of communities in the Scenic District (sections of the Town and Village of Saugerties and the Town of Esopus are directly across the Hudson from Red Hook).

1. Scenic Areas of Statewide Significance (SASS)

The Town of Red Hook coastal area is included in the Estates District Scenic Area of Statewide Significance (SASS). Red Hook also lies within the Ulster North SASS and constitutes the middle ground of its viewshed.

a. Estates District SASS

The Estates District SASS is approximately 27 miles long, extending from Cheviot Landing in the Town of Germantown, Columbia County, south to just south of the Franklin D. Roosevelt Home in Hyde Park, Dutchess County. The collection of large estates with their designed landscapes, the many undisturbed natural features and the significant public historic sites and architectural treasures render the SASS unique in the Hudson River coastal area, the State and the nation. Complementing the estates is extensive farmland of open fields, pastures and orchards. Some of these pastoral landscapes form gracious entrance ways to estates in the American Romantic landscape tradition, while others are more utilitarian and support cash crops more typical of working farms.

The Hudson River and its influence on the historical development of the area constitute the major unifying features. The river's shoreline configuration changes throughout the SASS. Creeks, such as Stony Creek and Bard Rock Creek, cut deep ravines and waterfalls. Where they enter the Hudson, they add interest to the shoreline, along with the coves, marshes and scattered islands, such as Cruger Island. The rich variety of vegetation gives a textural diversity to the SASS and enhances both its scenic character and its ecological value.

The SASS is generally free of discordant features. Some of the estates suffer from neglect and inappropriate bulky additions, but the landscape is generally well kept and its integrity maintained.

As its name implies, the Estates District SASS is dominated by major and minor historic estates and the Hudson River toward which they are oriented. The beauty of the region's landscape, including views of the Hudson and the distant Catskill Mountains, has been celebrated for generations, most notably in the paintings of the Hudson River School, the first indigenous art movement in the United States. The estates and manor houses were designed by renowned architects and landscape architects. In Red Hook, Alexander Jackson Davis designed the enlarged Montgomery Place, Blithewood's hexagonal gatehouse at Bard College, the Sylvania Chapel in Barrytown and two semi-octagonal gatehouses at Edgewater. Others contributing to the development of estates in Red Hook were architects Stanford White and Charles Platt and landscape gardeners H. J. Ehlers and the Olmsted Brothers.

Ruins of docks and ice houses are evident along the Hudson River, and dry laid stone walls and rows of mature trees line Woods Road. Barrytown still exhibits its historical connection to the Hudson as a river landing. Paths and carriage roads along the shores of the Hudson, some overgrown, indicate favored recreational activities that continue today. "The Poet's Walk" connecting Rokeby with Mandara and Sylvania is reputed to have been visited by Washington Irving.

Although the private estates cover most of the Hudson River, shore, the Estates District SASS is publicly accessible to a great extent, both visually and physically, from the Hudson River, from public streets and highways and from significant national and State parks and sanctuaries. Because of the attraction these facilities create and because the SASS has been the subject of treatises and art works, surveys and designations at both the State and national level, the Estates District Scenic Area is well recognized by the public for its aesthetic values. Views from the SASS focus on the Hudson River and distant Catskill Mountains. Internal views

range from intimate glimpses of estate edges and streetscapes to broad sweeps of pasture. Winding rural roads reveal new compositions at each bend.

The section of the Estates District SASS within the Town of Red Hook is located within the following subunits:

ED-1 Clermont Subunit
ED-2 Clermont/Tivoli Estate Farmland Subunit
ED-3 Tivoli Subunit
ED-4 Montgomery Place/Blithewood Subunit
ED-5 Tivoli Bays Subunit
ED-6 Bard college Subunit
ED-7 Annandale-on-Hudson Subunit
ED-8 Barrytown Subunit
ED-9 Astor Point Subunit
ED-10 Astor Cove Subunit
ED-11 River Road Subunit
ED-12 Mount Rutsen Subunit

Together the subunits constitute a landscape of national and international significance which evolved through the development of a rich cultural heritage in an outstanding natural setting.

b. Ulster North SASS

The Ulster North SASS encompasses the Hudson River and its western shorelands and overlaps the Estates District SASS along the Hudson River. The Ulster North SASS is a highly scenic and valued portion of the Hudson River Valley, rich in natural beauty, cultural and historical features. Views from within the SASS are extensive and significant, often full and unobstructed. From much of the area, long and broad views of the river and the surrounding landscape in Red Hook are available. The Hudson River creates the foreground and middle ground for many of the views east to the Estates District SASS. The forested shorelands and the major estates in the Estates District contribute significantly to the scenic quality of the Ulster North SASS. The SASS is accessible to the general public and well recognized by the public for its scenic quality.

The section of the Ulster North SASS within the Town of Red Hook is located within the following subunits:

UN-4 Saugerties Bluffs Subunit
UN-5 Esopus Creek Subunit

UN-6 Glasco Bluffs Subunit
UN-8 Glasco Subunit
UN-10 Turkey Point Subunit

2. Analysis of Scenic Areas of Statewide Significance

The scenic components of both SASS and actions which could impair their scenic quality are described more fully in the narratives contained in Appendix A.

3. Architectural Sites, Structures and Features and Archaeological Sites

In 1979 the Sixteen Mile Historic District was surveyed by Hudson River Heritage, Inc., a local non-profit membership organization, in an effort to document historic sites and to facilitate the preservation of the area's riverfront estate properties. Buildings within this historic district encompassing the riverfront estate areas of the Towns of Clermont, Red Hook, Rhinebeck and Hyde Park were placed on the National Register of Historic Places; in the Town of Red Hook the Historic District area is almost entirely west of Route 9G, but excludes most of the hamlet of Barrytown (see Map 13). The estates incorporated within the District include (from north to south) Teviot, Ward Manor, Cruger Island, Blithewood, Montgomery Place, Massena, Edgewater, Sylvania, Rokeby and Mandara (Steen Valetje). (See Map 7.) Rose Hill, The Pynes, and Tivoli House (Callendar House) are located in the Village of Tivoli.

These magnificent estates were built along the Hudson's eastern banks in the eighteenth and nineteenth centuries, representing the architectural and social history of the times. They included the residences of New York's wealthy families, from the early landlords to the later financial magnates.

Individually, most of these estates would meet the National Register criteria as distinctive architectural specimens and many assume additional importance from the roles that their occupants played in state and national history. However, the special significance of the area is derived from its location along the Hudson River. The views of the river and the Catskill Mountains add a scenic dimension which rivals and enhances its historic and architectural significance.

Several archaeological sites have been identified within the Town, but will not be listed in the LWRP to protect the sites from illegal looting.

4. Analysis of Architectural Sites, Structures and Features and Archaeological Sites.

Residents of the Town of Red Hook are interested in and concerned about the preservation of historic structures, sites, gardens and other features. As mentioned above, many steps have already been taken in designating historic

structures and sites in the Sixteen Mile District. Surveys of historic properties in the portion of the coastal area that is not included in the Sixteen Mile District need to be undertaken.

One such property is the masonry barns within the Tivoli Bays Preserve/Sanctuary and Research Reserve. This complex of farm buildings have fallen into disrepair and should be stablized and used in a manner consistent with the Sanctuary management plan and program.

At this time and for the future, community (public and private) efforts must focus on restoration, preservation and enhancement of existing historic sites, structures, gardens and other features such as stone walls and street trees and on creation of opportunities for adaptive re-use of historic structures. An issue that arises in connection with historic properties is the means for and extent of providing information to the public regarding the characteristics and location of the site/structure/feature. Privacy and security are key aspects to this. Moreover, the issue of gaining full or limited public access to historic properties also needs to be considered. Some properties may be open to the public on a regular basis, some may be available only on specific non-profit or commercial tours, and others may be viewed as a result of their institutional or commercial re-use. Others are absolutely closed to the public. Another area of concern is the encouragement of development that is compatible with existing historic development and discouragement of development that is incompatible. This new development need not be architecturally identical to existing structures, but it should not present a discordant, jarring appearance to already developed areas or to more open rural settings or to estate environments.

The several sites of archaeological interest in the Town need to be further protected against illegal looting and destruction of artifacts.

5. Landscape Distinction

The Mid-Hudson Historic Shorelands Scenic District Management Plan highlights four categories of landscape distinction that contribute to the scenic character of the Town: (1) Estate Landscape Gardens/Grounds, (2) Pastoral Countryside, (3) Parkland and (4) Landscape Appurtenances including stonewalls and tree lined roads. A discussion of parkland can be found in the subsection on Recreation and Open Space Areas.

The Hudson River estates within the Town have been noted not only for their architectural interest discussed above but also for the significance and interest of their landscaped gardens. The Historic Shorelands Scenic District Management Plan indicates that there are twelve estates in the Town of Red Hook and the Village of Tivoli that are important "for their common design themes and date of

construction as identified in the American Romantic Landscape Style," i.e. primarily during the period 1820 to 1880. These include those previously mentioned in the discussion of the Sixteen Mile Historic District under Architectural Sites, Structures and Features, (from north to South): Teviot, Ward Manor, Cruger Island, Blithewood, Montgomery Place, Massena, Edgewater, Sylvania, Rokeby and Mandara (Steen Valetje). Rose Hill, The Pynes and Tivoli House (Callendar House) are located in the Village of Tivoli.

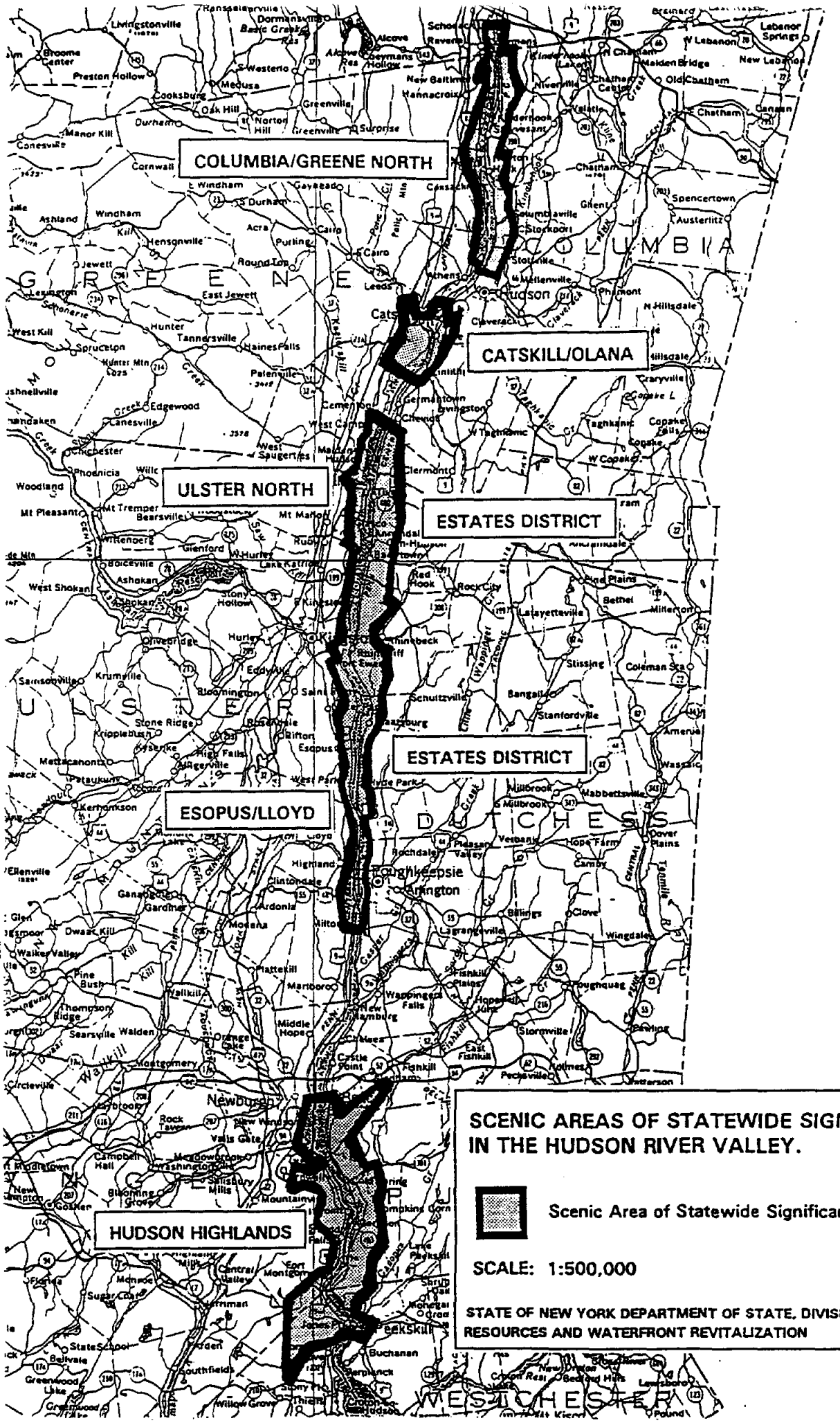
The pastoral countryside refers to a combination or an interweaving of visual components familiar in the rural areas of the Town: wooded areas, pastures, cropland, orchards and vineyards, irregularly placed residences and farmsteads. Within the pastoral countryside, several properties have been included in an agricultural district under the state agricultural and marketing laws, which helps to encourage the protection and maintenance of substantial areas of the Town in agricultural/open space use. (see discussion on agriculture above in Existing Land Use subsection.)

6. Analysis of Landscape Distinction

The need and value of protecting and restoring estate grounds to maintain and enhance the scenic beauty of the Town needs to be addressed. The landscape planning as well as the architectural design of the major structures are important from a historic point of view, but they are also very important as they contribute to the landscaping, vegetation and open space appearance of the Town. The design of estate grounds should be a major consideration in any plans to restore and renovate existing estates and/or plans to further develop or subdivide properties.In addition, prudent development of properties and preservation of vegetation is necessary to protect the shoreline from erosion and to prevent the loss of the "wilderness character" of the Tivoli Bays.

7. Stone Walls

Of the landscape appurtenances mentioned in the Mid-Hudson Historic Shorelands Scenic District Management Plan, stone walls were determined to be the most significant. These stone walls fronting on many of the estates have great value as historic and scenic resources. Stone walls are representative of an earlier period in the history of the Town when labor was relatively inexpensive, personal pride in one's work was high and the quality of craftsmanship was important. Many are currently in a state of disrepair and others are threatened by highway improvements. A 1980 report, Hudson River Stone Walls prepared by the Preservation Partnership for Hudson River Heritage, Inc., described these masonry walls, their preservation problems and solutions.



Map 6a

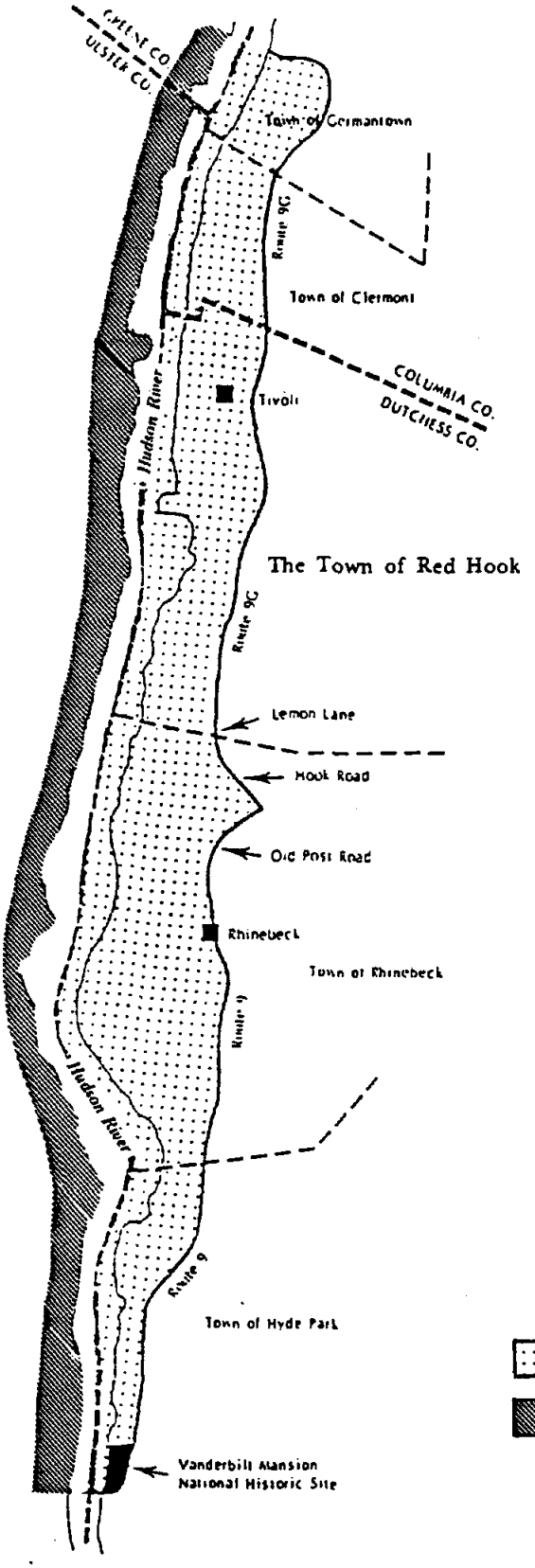
SCENIC AREAS OF STATEWIDE SIGNIFICANCE IN THE HUDSON RIVER VALLEY.

Scenic Area of Statewide Significance.

N

SCALE: 1:500,000

STATE OF NEW YORK DEPARTMENT OF STATE, DIVISION OF COASTAL RESOURCES AND WATERFRONT REVITALIZATION NOVEMBER 1992



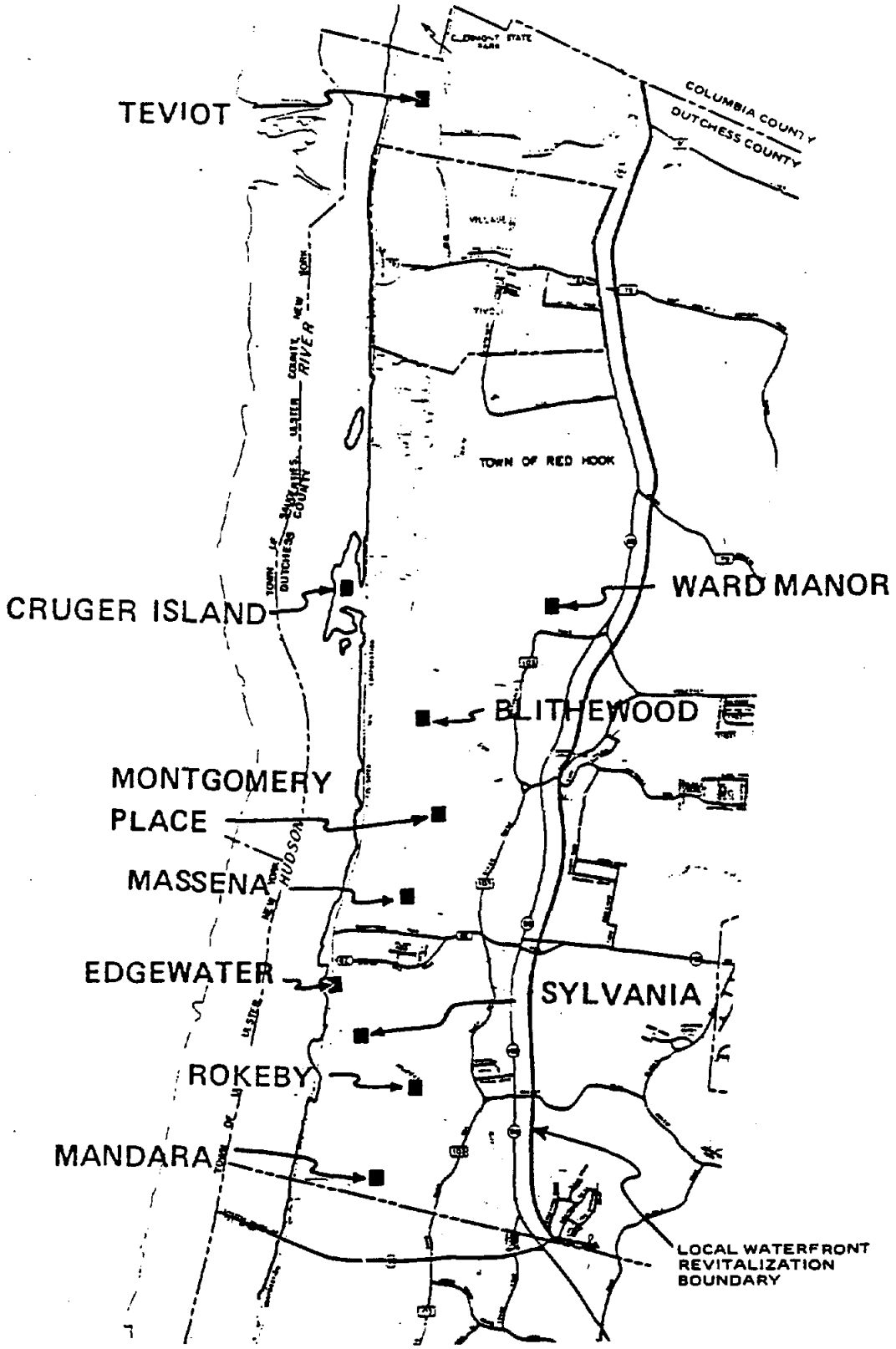
MID-HUDSON HISTORIC SHORELANDS
SCENIC DISTRICT/SCENIC ZONE

Source: Mid-Hudson Historic Shorelands
Scenic District Management Plan 1983

Local Waterfront Revitalization Program

Town of Red Hook, New York

Raymond, Parish, Pine & Weiner, Inc.—Planning & Development Consultants—Tarrytown, New York



HUDSON RIVER ESTATES

Local Waterfront Revitalization Program

Town of Red Hook, New York

Raymond, Parish, Pine & Weiner, Inc.—Planning & Development Consultants—Tarrytown, New York

8. Analysis of Stone Walls. A current community concern is the protection and repair of stone walls lining roads near the river. As mentioned above, many of the stone walls in the Town are in disrepair and others are threatened by road maintenance and improvement techniques: salt used to de-ice roads can lead to disintegration of the mortar used in the wall construction and road widening plans and activities may lead to weakening or destruction of these walls. While techniques for protection and repair of the walls are known and have been outlined in the 1980 report, many are not cognizant of the value of the walls, the process for repair is costly, few are trained to do the repairs.

9. Street Trees

Large old trees, many planted in mid-to-late 1800's, contribute to the scenic beauty of Red Hook. They are found lining Town streets and roads, as well as on riverfront estates.

10. Analysis of Street Trees

Unfortunately, it takes a long time to grow a large tree, but a short time to destroy such a valuable asset. The issue of how to best protect and maximize the life of existing large trees in the Town needs to be addressed. Some trees are in good condition; however, many trees are in a deteriorated state. Trees can be subject to damage from a variety of situations including: lack of care and pruning; inappropriate pruning in efforts to clear utility wires and rights-of-way; and inadequate consideration of site planning or lack of adequate protection for tree roots and trunk during construction of new development.

11. Scenic Roads

In 1981, following provisions of Article 49 of the Environmental Conservation Law, empowering the DEC to designate scenic highways and develop programs for their preservation and enhancement, the State Legislature directed DEC's Heritage Task Force for the Hudson River Valley, Inc., to undertake a study regarding the "protection and enhancement" of certain roadways in the Hudson River Valley. The Heritage Task Force, established by the DEC in 1980, examined a series of roadways which are considered important cultural and scenic features in the landscape and provide a means of visual and physical access to the Hudson River. Preserving and enhancing the appearance of the roadway and surrounding areas, as well as providing opportunities for better viewing of scenic vistas, continue to be among the goals of the Scenic Roads Program. This program was designed to create a greater public awareness of the importance of the scenic resources and to recommend preservation and enhancement measures. Several scenic roads providing outstanding scenery, views to the river and mountains and access to historical, cultural and recreational facilities were

outlined for the Town in the Scenic Roads Program, Volume I, prepared for the Heritage Task Force for the Hudson Valley in 1983.
The scenic roads in the Town of Red Hook Coastal area (excluding the Village of Tivoli) as designated include:

a. River Road/Annandale Road--from the Town of Rhinebeck boundary to the intersection with Route 9G.

b. New York Route 9G--from the Town of Rhinebeck boundary to the Dutchess/Columbia County line.

c. Kidd Lane--from the intersection with New York Route 9G to the Tivoli Village boundary,

d. Woods Road--from the Tivoli Village boundary to the Dutchess/Columbia County line.

e. Sengstack Road--from the intersection with Woods Road to the intersection with Stony Brook Street.

f. Stony Brook Street--from the intersection with Sengstack Road to the intersection with New York Route 9G.

g. Barrytown Dock Road and Station Hill Road west of River Road.

h. Kelly Road--east of River Road.

The following additional scenic roads were listed in the Mid-Hudson Historic Shorelands Scenic District Management Plan:

1. Rokeby Road.

2. Cruger Island Road.

In October, 1985, River Road/Annandale Road, Woods Road, Sengstack Road and Stony Brook Street were officially designated as Scenic Roads by the New York State Department of Environmental Conservation.

In addition to the above-mentioned land-based roads, the Hudson River (the east channel of which is within Red Hook's boundaries) may be considered the Town's greatest scenic highway. It offers splendid landward views of historic estates and natural areas.

12. Scenic Vistas

Although considered within the context of scenic roads, scenic vistas merit special attention and treatment. The term "scenic vistas" is used to refer to those locations or vantage points where sights of some broad expanse of unique and outstanding beauty are apparent. Generally the vantage point for such a vista is elevated from the surrounding area to increase the extent of the view and identified scenic vistas of primary interest are those (readily) available along a major road. The extent of the vista may change depending on the season of the year and the amount of foliage available.

As part of the preparation of the LWRP scenic vistas of great interest particularly in the coastal area of the Town were identified. (See location of scenic vistas on the Natural Resources Map 3.) The majority of those vistas identified in Red Hook included views of the Hudson River and Catskill Mountains. Other views are of river tributaries, wetland areas near the river, or agricultural and open space areas. Most of the vistas are located along the "scenic roads" of the Town; however, the northern panorama that can be viewed from the Kingston-Rhinecliff Bridge of the estate areas is also considered important.

13. Analysis of Scenic Roads and Scenic Vistas

It is widely recognized that the scenic roads and scenic vistas provide valuable resources for residents and visitors to Red Hook. However, full appreciation of the scenic roads and vistas is not possible since many of the views are not easily enjoyed by residents and tourists for a variety of reasons: involve the use of private property; the scenic view areas are not marked so that locating them may be a problem; pulling off the road and parking to enjoy any vistas is difficult in most places; overgrown trees may obscure known views and judicious tree trimming is limited; and utility lines may negatively impact on otherwise scenic areas.

A series of major issues and considerations for the preservation and enhancement of these areas are:

(1) Protection and/or enhancement of the attractiveness of land areas on both sides of a given scenic road--including treatment of vegetation, permitting of development that is compatible with the natural and manmade environments and discouraging of incompatible development, management of physical elements within road rights of way such as guide rails and utility poles, and protection of historic and attractive features such as stone walls and older street trees.

(2) Creation of pull-off and parking areas to improve the appreciation of scenic roads and scenic vistas.

(3) Removal or minimizing of elements that tend to detract from scenic roads and vistas such as inappropriately placed utility poles and wires, visually incompatible structures and excess foliage that may limit appreciation of vistas.

(4) Protection of natural vegetation while creating vistas in order to minimize erosion of clay banks.

E. ZONING

1. Zoning Districts

The **Waterfront Conservation (WC) District** lies along the Hudson River waterfront from the Village of Tivoli south to the Town's southern boundary. It encompasses lands within one thousand (1000) feet of the river and within one hundred (100) feet of Stony Creek, the Saw Kill, White Clay Creek and the Mudder Kill. The district is intended to protect scenic quality and preserve the sensitive natural resources of the Hudson, its coves and tributaries and their developmentally restrictive shorelands. Of particular concern are Tivoli North and South Bay and Cruger Island. All uses within 1000 feet of mean high tide are subject to special permit.

The **Limited Development (LD) District** includes environmentally significant estate and noninstitutional open space lands within the Town's coastal zone management area. Techniques such as cluster development and conservation easements will be used to mitigate impacts from development on the rural, scenic and historic character of the landscape.

The **Rural Development 5 (RD5) District** covers the land along the west side of NY Route 9G south of the Village of Tivoli with the exception of Bard College property. The district seeks to continue established land use patterns by providing for a mix of agricultural and compatible low-density residential development along with conservation, recreation and open space uses.

The **Residential 1.5 (R1.5) District** allows low-density suburban residential use in areas served by a town-approved central water supply system. The district encompasses the housing north of Bard College and adjacent to Annandale Road.

The **Hamlet (H) District** is intended to reinforce the traditional mix of residential uses and community facilities along Annandale Road and in the hamlets of Annandale-on-Hudson and Barrytown. Architectural design review is provided to protect and continue the vernacular character, scale and unique settings of structures within these hamlet areas.

The **Institutional (I) District** accommodates the comprehensively planned, extensive facilities associated with educational, health-related and other not-for-profit institutions as well as compatible residential, agricultural, conservation and open space uses.

2. Overlay Districts

The **Flood-Fringe Overlay (FF-O) District** encompasses the 100-year floodplain area as designated by the Federal Emergency Management Agency. Regulations meet the requirements of the Federal Emergency Management Agency.

The **Historic Landmarks Overlay (HL-O) District** covers the portion of the Hudson River National Historic Landmark District located in Red Hook. The area is comprised of large historic estates and other areas of historic and environmental significance. The district is intended to continue the estate and conservation uses and adaptive reuse and provide for environmentally sensitive new development.

The **Environmental Protection Overlay (EP-O) District** recognizes the scenic byways designated under the New York State Scenic Byways Law and other scenic corridors of local significance. View protection regulations protect the rural character of the roadway corridors, scenic vistas and the settings of historic properties.

The **Scenic Corridor Overlay (SC-O) District** encompasses those lands immediately adjacent to the Town's designated scenic roadways, a predominantly rural landscape. The district regulations supplement the area and bulk regulations applicable in the underlying zoning districts and address the treatment of land within identified scenic vistas, including those of historic structures and landscapes. The preservation of significant existing vegetation, plant specimens, landforms and water features and the incorporation of natural landscaping techniques are of particular concern.

3. Residential Uses

Single family homes are permitted in all the zoning districts within the coastal area, by special permit is in the WC district. New two family structures are allowed by special permit in the Hamlet District and conversions to two family are allowed by special permit in the LD, RD5, H, and I. Accessory apartments are permitted by special permit outside the WD district. Congregate care facilities are allowed in the LD, R1.5 and I districts.

4. Water Dependent Uses

Marinas, boat clubs, docks and boat ramps are allowed by special permit and site plan review is required. Regulations give preference to alternative ways to provide services such as dry-stack storage and open water facilities, marina design for maximum tidal flushing and circulation, and minimal dredging. Pump-out facilities are required.

5. Agriculture and Open Space Uses

Agriculture, forestry management and conservation uses such as wildlife preserves are permitted in all the zoning districts. Golf courses are permitted with site plan review in the LD, RD5 and R1.5 districts. Other outdoor recreation facilities for skiing, skating, picnicking and camping are allowed by special permit in all the districts. Riding academies and stables are allowed in the RD5 District by special permit.

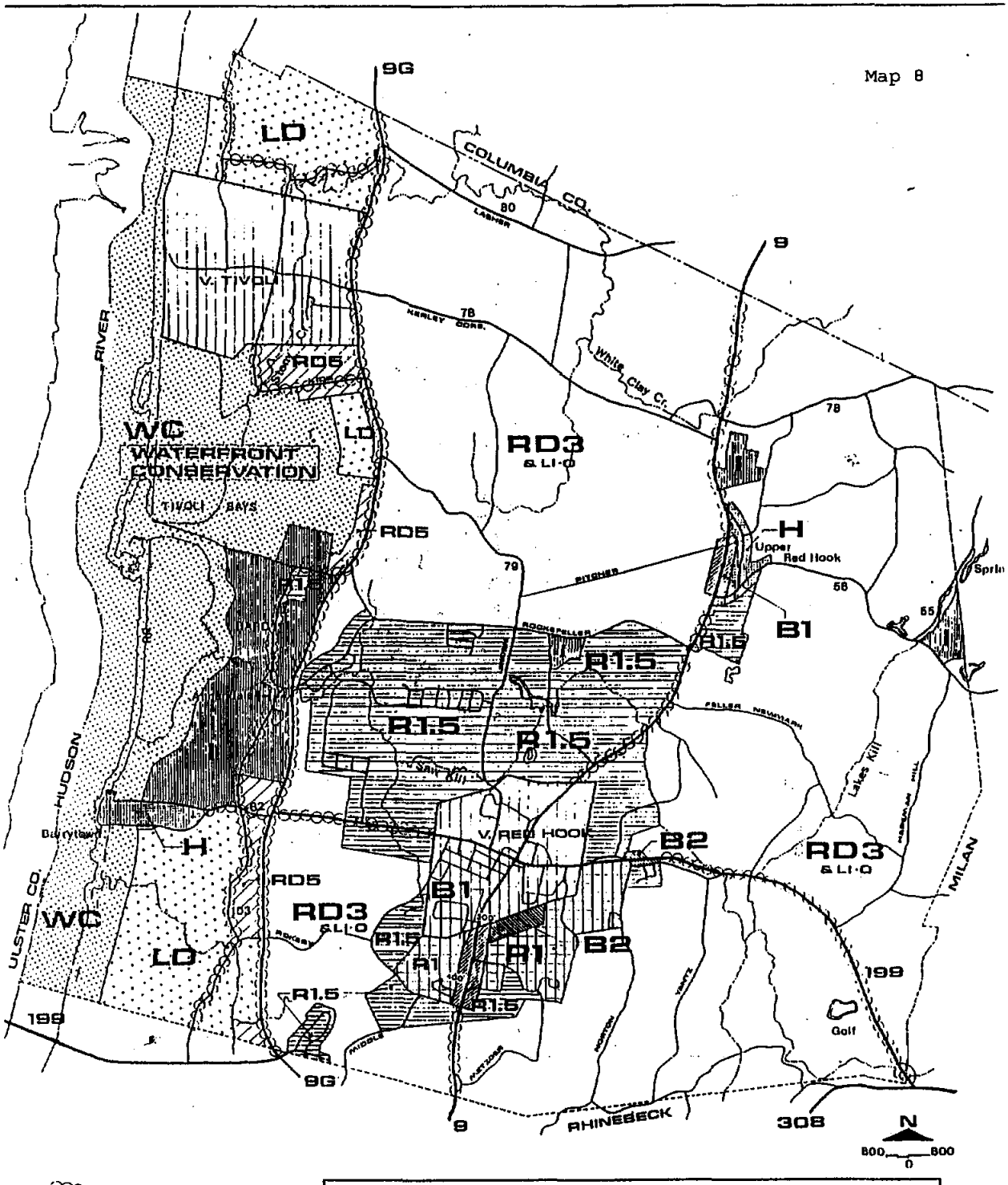
6. Analysis of Zoning

The Town of Red Hook's zoning has been designed to protect the rural and open space qualities and environmental features of the coastal area and to continue the historic pattern of development. The more dense development is guided to the hamlets and to other areas where a central water system exists. Uses which contribute to the scenic character of the landscape, such as forestry, farming, passive outdoor recreation and conservation uses are encouraged and reinforced. Water dependent uses are allowed where environmental impacts can be minimized.

Special regulations address historic structures and compatible new development, the preservation of views and vistas and the landscape elements which contribute to the scenic character of the area, and conservation of the extensive ecologically important resources found in the coastal area.

Town residents and officials have indicated a desire to avoid commercial sprawl and have zoned for uses that are compatible with preservation of the estate, agricultural and environmentally sensitive areas. Commercial uses are generally prohibited, except for marinas, conference centers, nursery schools, kennels and farm stands. Riding stables and facilities for skiing, skating and camping are also allowed in some districts.

Map 8



SC-O DISTRICT

FP-O see FEMA map

SP-O see CAC Index

HL-O COINCIDENT WITH BOUNDARIES OF NATIONAL HISTORIC LANDMARK DISTRICT (see HRE District Map)

WC INCLUDES CORRIDOR WITHIN 100 FEET OF THE HIGH WATER MARK OF THE LAKES KILL, STONY CREEK, SAW KILL, WHITE CLAY CREEK AND MUDDER KILL

ZONING DISTRICT MAP

"PROPOSED TOWN ZONING LAW" /
August 11, 1992
December 8, 1992

F. RECREATION AND OPEN SPACE AREAS

A variety of recreation and open space areas are important components in the everyday lives of Red Hook residents as well as assets for visitors to the area. These areas provide opportunities for passive and active recreation and provide desirable undeveloped, naturally landscaped settings for visual appeal and environmental protection. They are needed by young and old, by able-bodied and handicapped persons.

Because it was felt that to best assess recreational needs in the coastal area, it was desirable to determine the availability of and need for recreation and open space areas in the whole Town, as part of the LWRP preparation the variety of recreation and open space areas available throughout the Town have been inventoried (a full listing appears in the Inventory and Analysis Appendix B and an overlay map of Recreation and Open Space areas is available in the planning office of Town Hall). Those areas designated as public refer to sites where ownership is public or semi-public and access is available without permission or fee. Properties which have been included in the semi-public category have semi-public or private ownership with access occasionally or conditionally available to the public by permission or fee. Sites listed in the private category are privately owned and public access is not available. These latter sites, therefore, represent open space and limited recreation resources. Generally the recreation areas can be further classified as active or passive recreation areas. The active recreation areas contain recreational facilities such as basketball courts, tennis courts, softball and other playing fields and boat docking and launching facilities. Hunting, fishing and trapping are also popular and are allowed in the Estuarine Sanctuary. The open space and passive recreation areas are generally utilized for visual appeal and for less organized/non-facility oriented activities such as hiking, utilizing nature trails or bird watching. Included within the passive recreation/open space areas of the Town are the Tivoli Bays Sanctuary, cemeteries and farmland properties included within the agricultural district program.

In addition, an extensive trail network is maintained throughout the Town on private and public lands by equestrian and snowmobile organizations. A bicycle route has been designated along Route 199 in Red Hook Village. The Town is exploring various locations for expanding a public bikeway/trail system.

Wetland and flood prone areas of the Town adjacent to the River and kills and creeks are also considered to be part of the Town's open space resources. They serve important ecological and scenic functions and need to be preserved in their natural state to avoid flooding and erosion hazard problems.

Use of coastal access points for recreation purposes is discussed below.

Analysis of Recreation and Open Space Opportunities

The Town, Village and School District currently have several recreation sites including different types of facilities (see inventory); however, the need for certain types of public sites and facilities remains. Some of the issues facing Red Hook Town residents and officials are: how to gain additional access points to the river and/or its tributaries for water-related recreation activities; how and where to create a public trail system that

could be utilized by hikers, bicyclists, horseback riders and cross country skiers; and exploring the possibility of agreements with semi-public and private property owners to further utilize existing recreational facilities.

The need for maintaining open space is also very great. Some of the issues involved with protection of open space areas are included under discussions of agricultural areas and environmentally sensitive natural areas. The appearance of the Town, as well as protection of natural features, require attention to preservation of significant portions of these open space areas, now devoted to agriculture, creek beds, wetlands or as part of wooded or brushy areas. The major issues involved with open space areas are how to protect them in their entirety, where desirable or necessary, and/or how to minimize negative impacts of some development proposed within current open space areas.

G. COASTAL ACCESS POINTS

The coastal access points or points of access to the Hudson River (see Map 9) represent outstanding short and long range recreational and open space opportunities for the Town of Red Hook. They are treated separately from the other recreation and open space areas because of their importance to waterfront planning in the Town.

In recent years, the Hudson River itself has played a relatively minor role in the life of the Town primarily because of the limited public access to the river. The railroad tracks along the shoreline have severely limited safe access to the river for commercial and recreational activities. In addition, the presence of the large estates bordering the Red Hook shore (except in the Barrytown landing area) has restricted enjoyment of the vistas of the river and significantly limited utilization of land near the river to a very few individuals and groups.

The Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve currently provides the only public access to Red Hook's Hudson River shore in the unincorporated area of the Town. Those wishing to approach Cruger Island from the land side can enter via Cruger Island Road; however, no grade crossing physically exists, thereby limiting access to pedestrians. In developing and debating the state's management plan for the Preserve/ Sanctuary, the pros and cons of reestablishing a vehicular grade crossing will be evaluated. There is good reason to keep motor vehicles out of much of the Sanctuary and especially off the Island.

Two public sites for hand-launching of boats into North Bay with accompanying small car parking areas, are also available: one just off Cruger Island Road and the other slightly northeast of the first, nearer to Ward Manor Road (see Map 10). At low tide, boats can go into the Hudson River under railroad bridges; however at ebb or flood tide, these passages can be extremely hazardous.

The Barrytown Bridge provides access to a substantial amount of privately held land in Barrytown, including the Red Hook Boat Club, although the bridge is currently in need of structural repair and maintenance for full, long term use. In recent years, members of the Hudson River Iceboat Club have used the deteriorated, privately-owned Barrytown Landing to launch iceboats on the frozen river and the Conrail service road north from

Chart I - Town of Red Hook (excluding Village of Tivoli)
Inventory of Hudson River Coastal Access Points
Including Docks and Landings (see Map 9)

Access Point/Landing Site with Ownership (North to South)	Description of Site and Current Access	Comments on Possibilities of Future Public Access: Possible Advantages	Comments on Possibilities of Future Public Access: Apparent Disadvantages
Tivoli Bays State Nature and Historical State-Preserve/Tivoli Bays Estuarine Sanctuary--owned by New York State under the Department of Environmental Conservation and Office of General Services (expected to be owned and managed by DEC). Includes North and South Bay areas, Cruger Island, Magdalen Island in the Town and portion (including Sycamore Point) in Village of Tivoli.	State-owned site contained approximately 1,400 acres of wetland and upland areas acquired for preservation of high quality wetlands. Access for research, nature trips, fishing and duck hunting and field trials (training and duck hunting and field trials (training dogs for bird hunting). One pedestrian access point via grade crossing to Cruger Island and the Hudson River. For boat access to North Bay near Cruger Island and Stony Creek, DEC built two small landing areas and small parking areas. Cruger Island, with causway to shore, contains over 50 acres west of railroad. Magdalen Island, with about 8 acres west of railroad is not connected to mainland. A parcel within the Village of Tivoli DeCastella contains non-functional grade crossing from the foot of Sycamore Point to a small masonry pier.	Preserve/Sanctuary will remain in public ownership. Combination of DEC ownership and Central Hudson Corridor in vicinity of Cruger Island Road. DEC may elect to rehabilitate Cruger Island Road and reinstall the grade crossing, but probably only for administrative (not public) use.	At flood and ebb tides use of these passages under railroad bridges in North and South Bays can be extremely hazardous. Access possible via boat from North and South Bay to river and back at low tide under railroad bridges.Cruper Island Road now usable only for pedestrian access. Conrail has indicated desire to eliminate all on-grade crossings for reasons of safety.
Bard College	This property of over 300 acres has no direct access to the River; however, the Ecology Field Station is utilized by Bard and the Preserve/Estuarine Sanctuary and Research for research, field trips and approach to the Tivoli South Bay.	Bard has allowed community use of many facilities with permission. The Ecology Field Station is being used for educational and research activities of the Preserve/Estuarine Sanctuary and Research Reserve. Access possible via boat from South Bay to river and back at low tide under railroad bridges.	Privately-owned college. At flood and ebb tides, use of railroad bridges passage can be extremely hazardous.
Montgomery Place Estate (owned by Sleepy Hollow Restorations).	Sizable portion of South Bay and Hudson River underwater lands and Skillipot Island owned as part of 175-acre estate. Privately owned property adjacent to Tivoli Bays Sanctuary/Preserve and Research Reserve and Bard College.	Estate and grounds to be opened for public viewing.	Not-for-profit organization owned parcel; no direct access from land to Hudson River, except by use of small boats across South Bay and under railroad bridges.
Heron point, parcel owned by the Unification Church with upland area and underwater lands totaling 23 acres.	Scenic, wooded parcel west of railroad. Part of 250+ acre estate used as Unification Church Theological Seminary.	Access to site via Barrytown Bridge and railroad service road. Public has used Heron Point for picnicking and swimming for decades without permission or challenge. Might complement public landing/boat launch next to Boat Club.	In church ownership
Parcel owned by Rovere-less than one acre.	Residential property with access via Barrytown Bridge and railroad service road.	Access to site available via Barrytown Bridge and railroad service road.	In private ownership.
Parcel owned by the Unification Church 1.1 acres.	Parcel classified as residential with access via Barrytown Bridge and railroad service road.	Access to site available via Barrytown Bridge and railroad service road.	In private ownership.
Parcel owned by Morrison--less than one acre.	Residential property with access via Barrytown Bridge and railroad service road.	Access to site available via Barrytown Bridge and railroad service road.	In private ownership.

Chart I - Town of Red Hook (excluding Village of Tivoli)
Inventory of Hudson River Coastal Access Points
Including Docks and Landings (see Map 9)

Access Point/Landing Site with Ownership (North to South)	Description of Site and Current Access	Comments on Possibilities of Future Public Access: Possible Advantages	Comments on Possibilities of Future Public Access: Apparent Disadvantages
Two parcels, one of 1.42 acres including underwater lands and a second of less than one acre, located north an east of the first, both owned by Jenrette.	Waterfront parcel was historic landing in Barrytown. Possibility that deep water docking still available as part of this parcel.	Access to site available over Barrytown Bridge. Possibility of utilizing portion of Contrail property east of parcel for parking area. Two parcels could be combined for same use.	Currently in private ownership.
Red Hook Boat Club--two parcels with total of about two acres.	Boat club has docking and storage facilities for boats and area for parking of cars. Recent improvement to bulkheading and docks.	Access to site available over Barrytown Bridge.	Membership club in private ownership.
Two residential parcels owned by Jenrette. Northern one of 2.3 acres and southern parcel is 11+ acres including underwater lands.	Southern parcel includes Edgewater estate with protected cove area.	Access via Barrytown Road. Sizeable portion of land with historic estate that has been restored.	In private ownership.
Portion of Consolidated Railroad property west of the tracks between Barrytown Dock Road and Station Hill Road.	Includes wider area than is needed for railroad bed alone.	Potential for utilizing portion of site for parking if waterfront parcel used public recreation.	In Contrail ownership.
Sylvania including Picnic Point (owned by Lerrick).	Picnic point, an area west of the tracks of about one acre, is part of 230+ acre estate.		Land currently in private ownership.
Rokeby including Astor Point (owned by Aldrich). 26 acre parcel west of railroad includes substantial underwater lands and Chanler Island.	Estate site contains vehicular bridge across the railroad tracks, currently in state of disrepair. Sizeable portion of upland west of the railroad (about four acres) including deteriorated pier together with deed to 20+ acres of underwater lands. Waterside parcel included within 300+ acre parcel. Island used by Coast Guard as a site for a permanent navigation beacon.	Existing bridge could be repaired to give access to large parcel of land west side of railroad and deteriorated pier could be repaired or replaced.	Land currently in private ownership.
Mandara also known as Steen Valetje (owned by Friedman).	Site contains pedestrian bridge across railroad which is currently in state of disrepair. Minimal portion of land on river side of tracks, but some 20 acres of underwater lands are part of estate property.	Bridge could be repaired. Extensive underwater land west of railroad tracks.	Land currently in private ownership. Little upland west of railroad.

Name of Site	Location	Jurisdiction/ Ownership	Size of Parcel	Type of Access**	Facilities Available*** Soft-ball Field	Base-ball Field	Soccer Field	Foot-ball Field	Basket-ball Court	Volley-ball Court	Tennis Court	Trails: Hiking	Trails: Eques-trian	Trails: Bicycle	Swimming Pool/ Area	Camping Area	Picnic Area	Fishing Area	Bike Racks	Rest Rooms
Town Recreation Park	Linden Avenue	Town	Active area 7 acres	Public	2	1			1	1	2			X		X	X	X		2
Red Hook High School	Route 199 Village of Red Hook	Red Hook Central School		Public	1	1	1	1	1	1										
Red Hook Junior High School	Route 199/ Linden Avenue, Village of Red Hook	Red Hook Central School		Public	2				1	1	3									
Red Hook Elementary School	Hill Road	Red Hook Central School		Public	2				1	1	1									
*Tivoli Bays State Nature and Historical Preserve/ Estuarine Sanctuary	North and South Bays	New York State	1,460 acres	Public								X						X		
Clermont State Park	Woods Road	New York State		Public																
Red Hook Library	Route 9 Village of Red Hook	Private/ Private & public financing		Public																
St. Christopher's Roman Catholic School	Bunner Road	St. Christopher's Roman Catholic Church		Semi-Public	1	1			1	1										
*Bard College	Annandale Road (River Road)	Bard College		Semi-Public	1		1		1		X	X								

*Site located within Waterfront Revitalization Area.

**Public--access open to public.
Semi-public--access conditionally available to the public through permission or fee.

***An "X" is indicated where facilities are available, but specific number is not known.

Name of Site	Location	Jurisdiction/ Ownership	Size of Parcel	Type of Access**	Facilities Available***														
					Soft-ball Field	Base-ball Field	Soccer Field	Foot-ball Field	Basket-ball Court	Volley-ball Court	Tennis Court	Trails: Hiking	Trails: Eques-trian	Trails: Bicycle	Swimming Pool/ Area	Camping Area	Picnic Area	Fishing Area	Bike Racks	Rest Rooms
Red Hook Golf Club	Route 199	Private		Semi-Public															
Camp Taconic		Private Church owned		Semi-Public											X	X				
Hardscrabble Roller [illegible]	Route 9	Private		Semi-Public															
*9G Bowling Alleys	Route 9G	Private		Semi-Public															
Sky Park Airport	Route 199	Private		Semi-Public															
Old Rhinebeck Aerodrome	Stone Church	Private		Semi-Public															
*Red Hook Boat Club	Barrytown Dock Road	Private		Private															
*Unification Theological Seminary		Private		Private															
Camp Rising Sun	Rock City Road	Private		Private															

*Site located within Waterfront Revitalization Area.

**Public--access open to public.
Semi-public--access conditionally available to the public through permission or fee.
Private--access restricted.

***An "X" is indicated where facilities are available, but specific number is not known.

Barrytown to launch boats on Tivoli South Bay and the public has used portions of Heron Point owned by the Unification Church for picnicking--all without owner protest.

Two additional steel bridges have in the past provided private access cross the tracks to the river; the pedestrian bridge at Mandara and the vehicular bridge at Rokeby. These bridges are in deteriorated condition.

Finally, some residents of the Town utilize a grade crossing in the Village of Tivoli for access to the Hudson; moreover a legal, but non-functional grade crossing exists in the Village of Tivoli on Sycamore Point now part of the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary.

A need for additional locations for public access to the river has been recognized. As part of the preparation of the LWRP, an inventory has been made of all properties, dock sites, landings and points in the Town that currently or historically have provided river access (see Map 9). Some preliminary analysis has been undertaken to determine: (1) which, if any, of the inventoried sites might provide opportunities for future public access, (2) some of the advantages and disadvantages of specific sites and (3) areas where the State currently holds title to underwater lands that may be used for public access to the Hudson River (see Map 11). At this time only the Tivoli Bays State Nature and Historical Preserve/National Estuarine Sanctuary and Research Reserve is usable for public direct access to the river.

Analysis of Coastal Access Opportunities

Several factors have limited public access to the river for the last century. A primary limiting factor has been the development of the railroad along the shoreline of the Town and the policies and practices of railroad management which have severely restricted public and private access to the river. Higher speed train traffic has limited what were once were considered usable grade crossings, and bridges over the tracks are in various stages of disrepair. In recent years the Consolidated Rail Corporation has not maintained any of the bridges over the railroad, which further limits access. The bridge over the railroad tracks in Barrytown has provided access to a sizable amount of land; however, this bridge is currently in need of structural repair and maintenance. A few years ago the bridge was damaged when it was struck by a train, although it continues in use. The bridge is needed by individuals in cars who must cross the tracks to get to residences or the boat club as well as for use by fire trucks, school buses and other service vehicles. The Town Highway Department has repaired the roadway of Barrytown Bridge with public and private funds, since the Town has agreed to maintain the roadway of the bridge and portions of the roadway of Barrytown Dock Road. The Town and County state that Conrail is responsible for structural repairs to the bridge. The pedestrian bridge at Mandara and the vehicular bridge at Rokeby are also sorely in need of repair, but no funding has yet been forthcoming. Incentives could be provided to the owners

to maintain them and Conrail should be deterred from removing them, as semi-public use may be negotiated in the future.

There is extensive interest in providing a public access site in Barrytown. Two sites have been identified; however, the feasibility of acquiring and/or using the sites for public purposes has not been determined. Thus a major issue of interest to officials and residents is providing structural repair of bridges before there is further deterioration since Conrail, which is currently being offered for sale, has taken no remedial steps.

Another issue, also particularly timely because of concern over the future status of Conrail holdings is the future status of land holdings beyond the minimal road bed requirements; e.g. a portion of the "excess" roadbed in Barrytown might be suitably used for a parking area if a public access site were developed.

A second factor limiting access has been the pattern of the large estate development along all parts of the Town's riverfront (except in Barrytown and Tivoli) which has restricted access to a small minority of Town residents. As estates are rehabilitated, renovated or possibly subdivided, or as properties along the waterfront in Barrytown are available for sale, it will be important to examine the inventoried access points to determine how public access can be enhanced or increased, i.e. how can the land west of the railroad tracks be utilized to increase opportunities for residents and visitors, if appropriate, for commercial and recreational fishing and boating as well as waterfowl hunting.

A third issue is the use of underwater lands. Much of the underwater land immediately adjacent to the shoreline is in private hands, but some submerged lands immediately along the shore are in State ownership (see Map 11). Future opportunities to use underwater lands to provide access to the Hudson must be utilized.

H. UTILITIES

1. Water Supply

Currently there is no municipal water system serving the local waterfront revitalization area within the unincorporated area of the Town. The Village of Tivoli has a municipal supply and the Town has recently taken over the wells and distribution system of a private company located east of the waterfront area. There are no current plans for serving the unincorporated waterfront area.

Bard College uses water from the Saw Kill, the Village of Tivoli has recently been issued a permit to make intermittent water withdrawals from Stony Creek and other property owners in the coastal area of the Town utilize individual wells that draw from groundwater aquifers.

2. Sewer System

Currently there is no public sewer system in the local waterfront revitalization area within the unincorporated area of the Town.

Bard College has a sewage treatment plant whose effluent ultimately flows into Tivoli South Bay.

Individual residences and businesses utilize septic systems. Requirements for inspection and periodic maintenance should be established to protect ground water.

3. Other Utilities

Electric power is provided for area residents by Central Hudson, Gas and Electric Corporation, telephone service available from Continental Telephone and cable television service is available for some portions of the coastal area of the Town. Where these services are currently available they have generally utilized utility poles.

4. Analysis of Utilities

At this time lack of availability of public water and sewer in the coastal portion of the Town limits development opportunities in this area. Current low density zoning appears appropriate relative to absence of utilities, environmental constraints, and desirable quality of life in the area.

Utilization of utility poles for electric, telephone and cablevision services often results in aesthetically unpleasant situations. Poles and wires mar scenic vistas and sights along scenic roads, and often result in disfigured or destroyed trees. New development should have underground wiring, wherever possible.

I. TRANSPORTATION

1. Highways, Roads and Streets

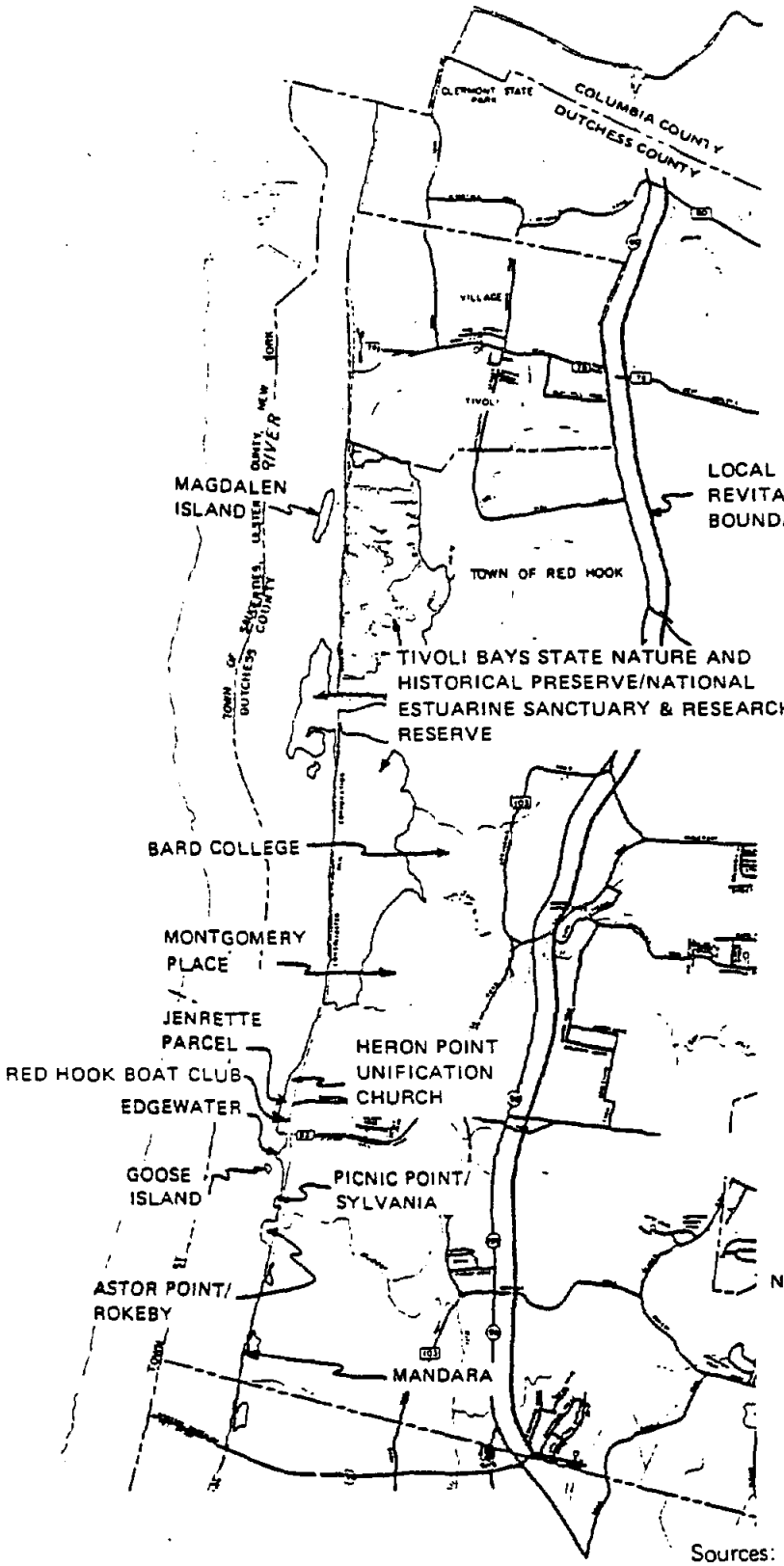
All public roads or streets in the coastal area of the Town are two-lane. The major coastal area route is the north-south oriented State Route 9G. A significant amount of the traffic to and from Route 199 and the Kingston-Rhinecliff Bridge comes onto 9G. Creation of Route 9G has served to protect scenic estate areas along River Road/Annandale Road closer to the river. Other roads within the coastal area of the Town including the east-west Barrytown Dock Road are generally used for local traffic (see Map 12). There is currently no public transportation within the coastal area.

2. Analysis of Transportation/Traffic Situations

State Route 9G oriented in a north-south direction at the eastern end of the local waterfront revitalization area is a well-functioning primary transportation artery in the area. Parallel to it and closer to the river, River Road/Annandale Road is a historic road built to serve the 18th Century riverfront farms, whereas 9G was created to provide a wider, improved transportation path that would bypass the old alignment and local traffic. At this time the road system in the coastal area is adequate, if reduced speeds can be maintained on rural roads to keep safe conditions while preserving old alignments, stone walls and trees. It appears that within the coastal area some additional traffic volumes can be handled without significant changes.

Establishment of Montgomery Place as a museum/historic renovation will require development of a road from Route 9G to the site. Construction of parking areas and provision of a shuttle bus to the estate house to limit use of the scenic River Road/Annandale Road.

Creation of a Town Dock and mini-park in Barrytown will require the construction of nearby parking areas, possibly on land currently held by Conrail adjacent to the railroad bed. In the future, efforts will need to be made to increase the ability of residents and visitors to get to coastal recreation areas, e.g., by providing bus routes.



Note: See Inventory Chart of *Hudson River Coastal Access Points.*

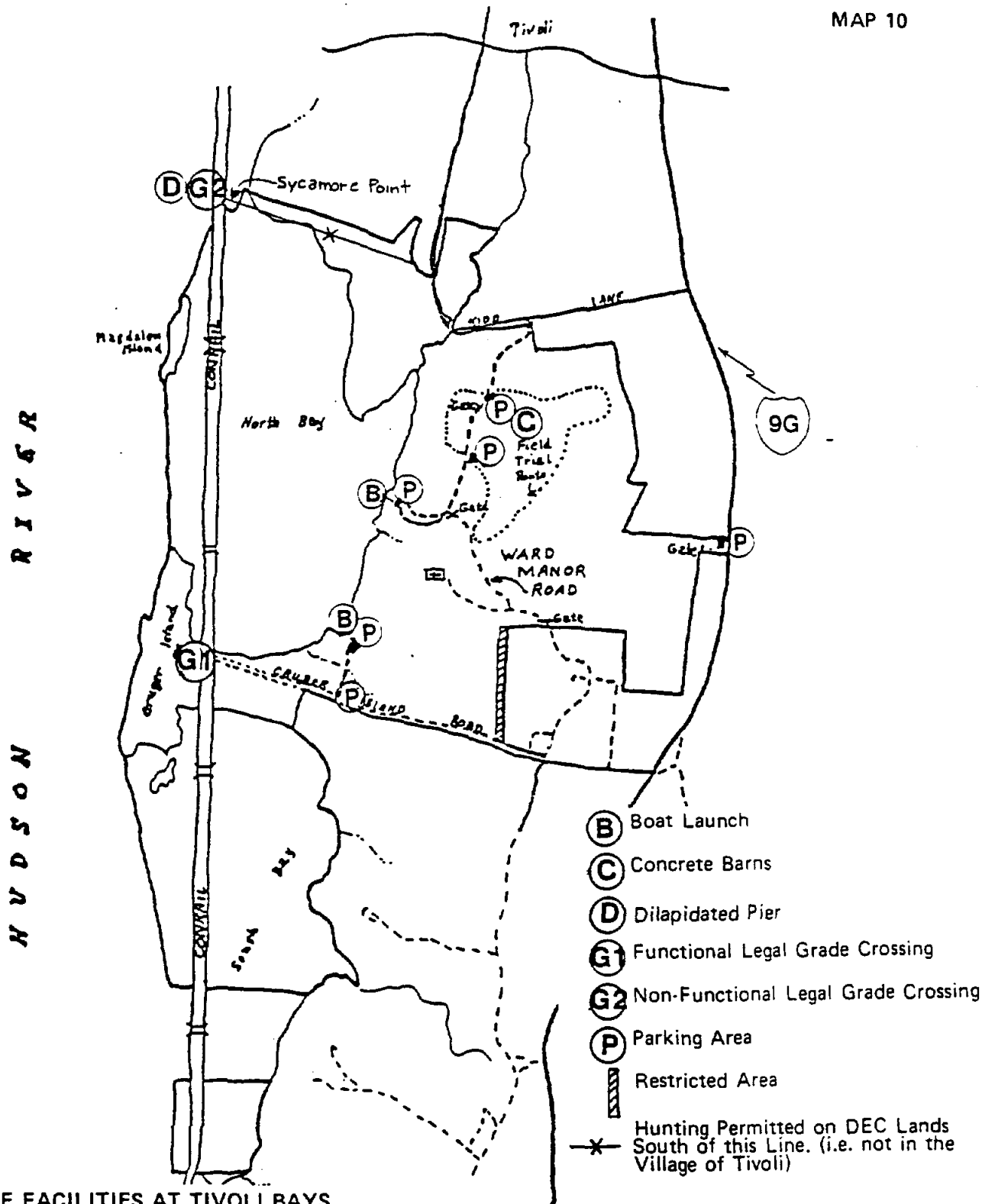
Sources: Town of Red Hook Waterfront Advisory Committee
RPPW Field Work
Town Tax Maps

MAJOR COASTAL ACCESS POINTS

Local Waterfront Revitalization Program

Town of Red Hook, New York

Raymond, Parish, Pine & Weiner, Inc.—Planning & Development Consultants—Tarrytown, New York

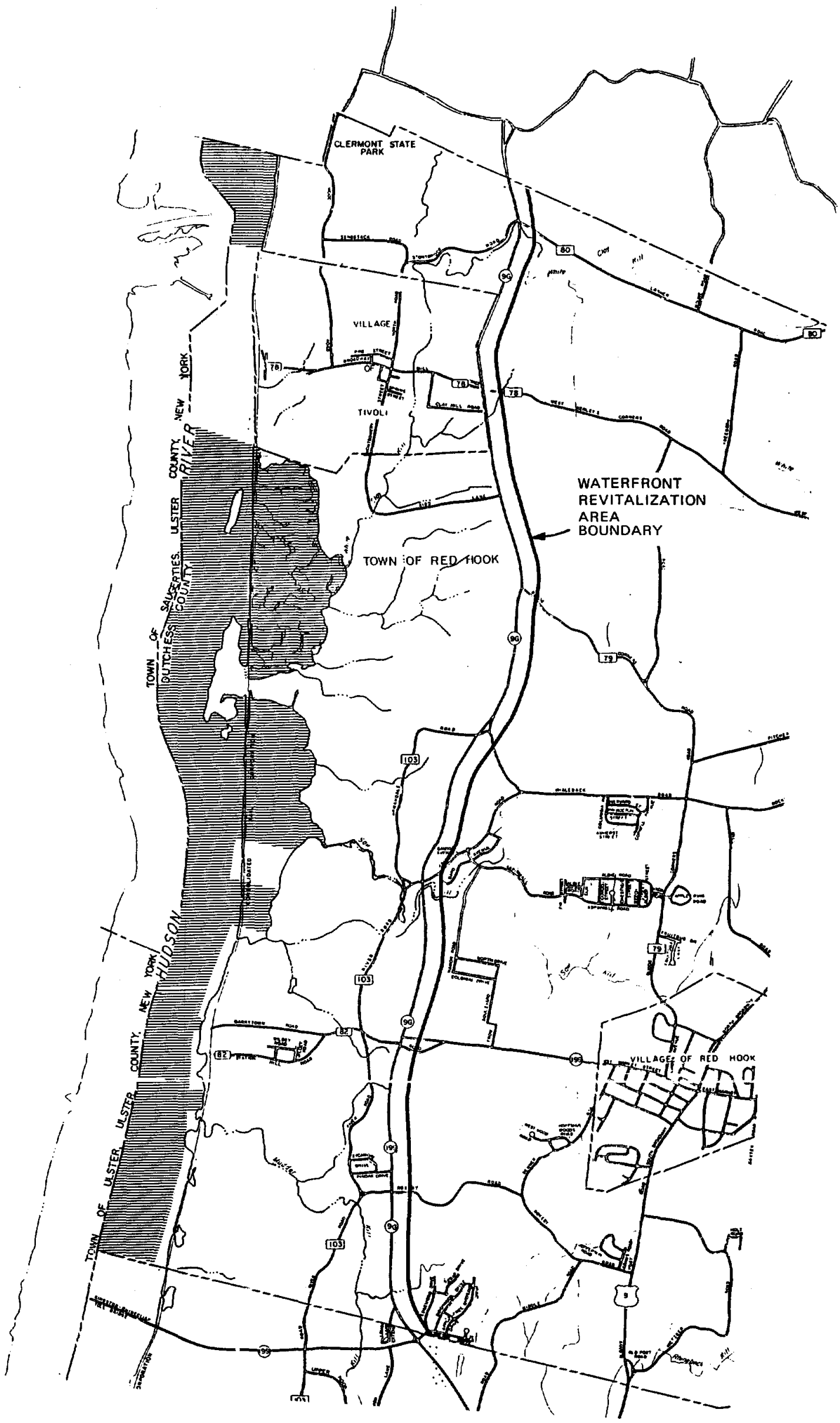


LOCATION OF FACILITIES AT TIVOLI BAYS STATE NATURE AND HISTORICAL PRESERVE/ TIVOLI BAYS NATIONAL ESTUARINE SANCTUARY AND RESEARCH RESERVE

Source: Draft Management Plan for Tivoli Bays Unique Area 1984 New York State Department of Environmental Conservation DEC. Survey Map 1985; W. Aldrich memo.

Local Waterfront Revitalization Program

Town of Red Hook, New York



SUBMERGED LANDS UNDER TITLE TO NEW YORK STATE

STATE UNDERWATER LANDS

SOURCE: OFFICE OF GENERAL SERVICES WATER GRANT INDEX MAPS FOR DUTCHESS COUNTY

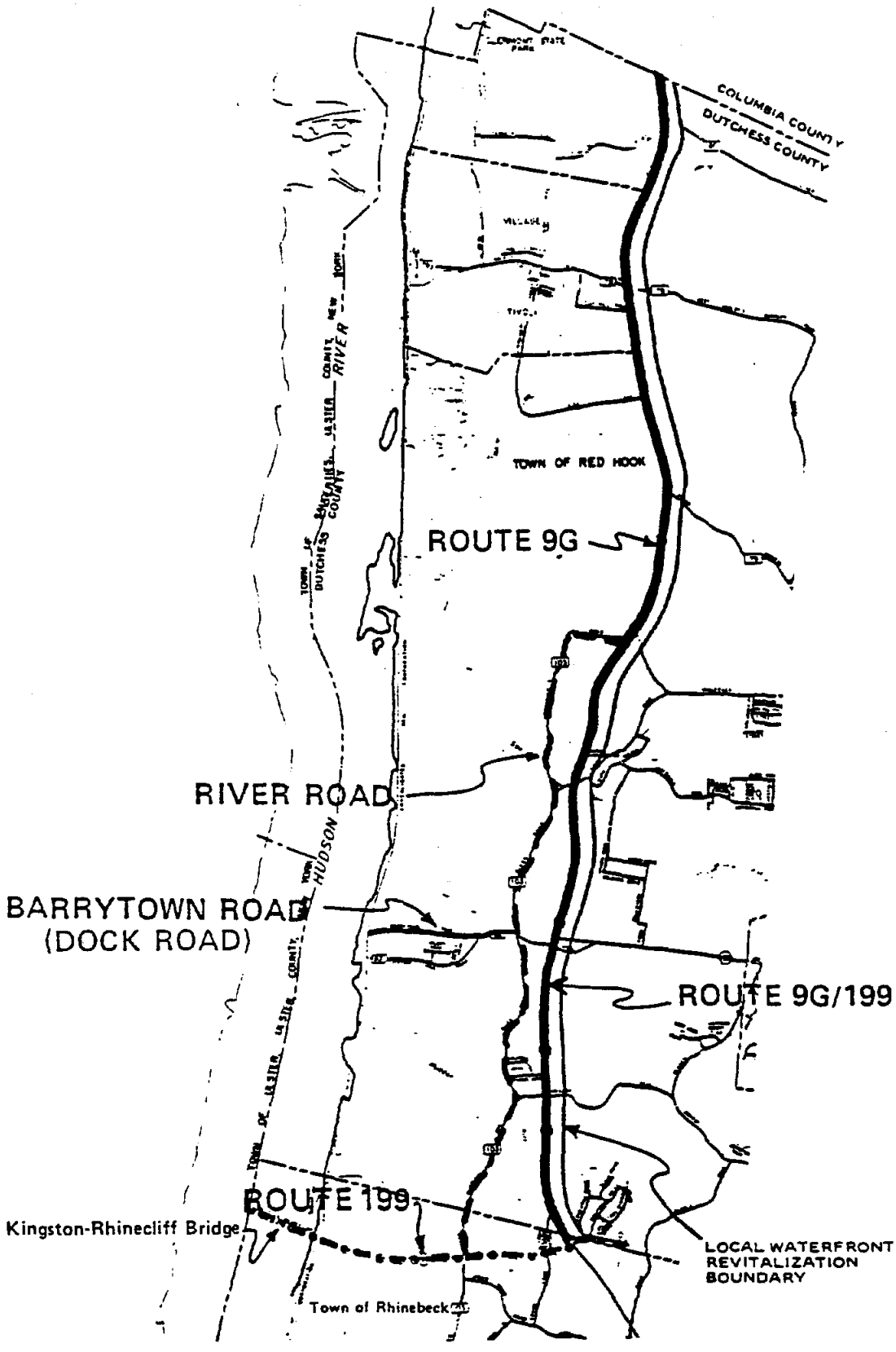
Local Waterfront Revitalization Program

Town of Red Hook, New York

0 500 1000 2000ft

Raymond, Parish, Pine & Weiner, Inc.—Planning & Development Consultants—Tarrytown, New York

MAP 12



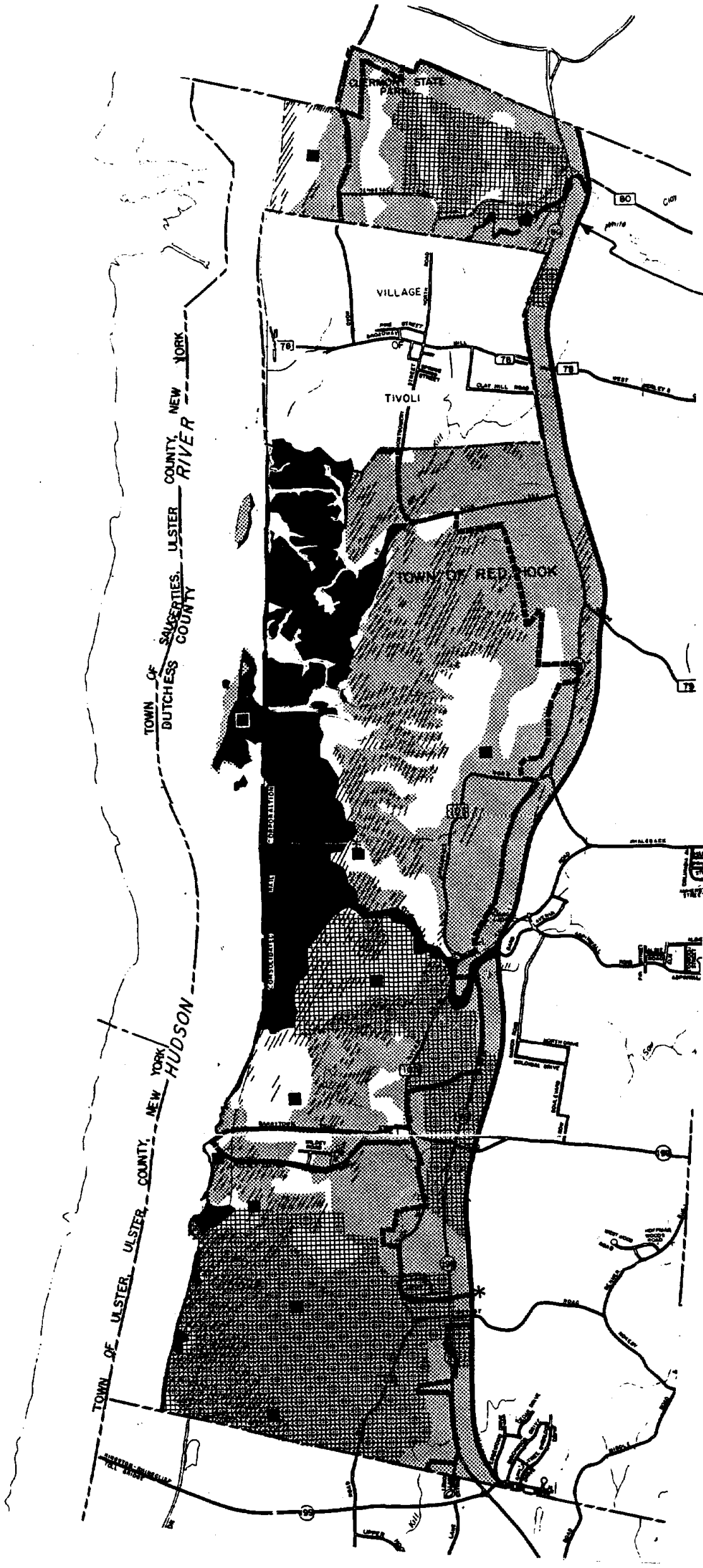
MAJOR TRANSPORTATION ROUTES

Local Waterfront Revitalization Program

Town of Red Hook, New York

Raymond, Parish, Pine & Weiner, Inc.—Planning & Development Consultants—Tarrytown, New York

MAP 13



Sources:

New York State Coastal Atlas Maps
FEMA Flood Insurance Rate Map 10/16/84
Mid-Hudson Historic Shorelands Scenic District Management Plan
Red Hook Waterfront Advisory Committee

SUMMARY OF MAJOR DEVELOPMENT CONSIDERATIONS

Local Waterfront Revitalization Program

Town of Red Hook, New York

Raymond, Parish, Pine & Weiner, Inc.—Planning & Development Consultants—Tarrytown, New York

INVENTORY AND ANALYSIS APPENDIX

Major initiatives undertaken in Red Hook in protecting and enhancing sites, uses, environmental features, and quality of life within the Town, particularly in the areas designated as the Local Waterfront Revitalization area/Mid-Hudson Historic Shorelands Scenic District.

1993	Red Hook Town Comprehensive Plan, , completed by Planners East, Inc. Consultants to the Town.
1993	Red Hook Town Zoning Law adopted.
1970	Subdivision Regulations, adopted 1993.
*1971	Visual Environment Committee created to maintain and improve visual integrity. Encouraged storefront restoration, tree planting and appropriate signage.
1974	Commission for the Conservation of the Environment appointed by the Town Board.
*1974	Hudson River Heritage, Inc. a preservation organization concerned with river properties was founded.
*1976	Hudson River Nature Trail planning begun sponsored by Hudson River Heritage and Dutchess County Cooperative Extension Service.
*1976	Agriculture Districts formed to provide tax relief for farmers.
*1976	Hudson River Shorelands Task Force created by the towns in the Historic District. This not-for-profit organization was set up to monitor land use activities within the district and to make recommendations on scenic and historic preservation activities.
*1978	Hudson River East Bank Natural Areas, Clermont to Norrie, study by Erik Kiviat sponsored by the Nature Conservancy.
*1979	Sixteen Mile Historic District which incorporates large estates in Hyde Park, Rhinebeck, Red Hook, Tivoli and Clermont designated on the National Register of Historic Places.

*Asterisk indicates activities undertaken with other Mid-Hudson Historic Shorelands Scenic District communities.

*1979 The Hudson River Valley: A Heritage for All Time, a study by Raymond, Parish, Pine & Weiner for the New York State Department of Environmental Conservation was published as a result of the Hudson River Study Bill.

*1980 Inventory and Evaluation of Landscape Architecture in the Sixteen Mile Historic District, a study by Robert Toole commissioned by the Hudson River Shorelands Task Force.

*1980 "State Regulated Wetlands," a Wetlands Survey undertaken by the Commission for the Conservation of the Environment.

*1981 New York State's first designated Scenic Area named "Mid-Hudson Historic Shorelands Scenic Area" by virtue of Article 49 of the Environmental Conservation Law. The Town began work with the Hudson River Shorelands Task Force to develop a Scenic District Management Plan with attention to proposed Scenic Roads and land use controls with monies for the plan coming from the Heritage Task Force.

*1981 Hudson River Stone Walls, a study by the Preservation Partnership, consultants for Hudson River Heritage.

*1981 Heritage Task Force for the Hudson River Valley, Inc. formed by Department of Environmental Conservation.

1981 & 1985 Acquisition in two stages of the Tivoli Bays State Nature and Historical Preserve.

1982 Environmental Impact Statement for the Hudson River Estuarine Sanctuary, a study prepared by the U.S. Department of Commerce (NOAA) and the New York State Department of Environmental Conservation about the designation of four Hudson River sites, including the Tivoli Bays, as the Hudson River National Estuarine Sanctuary and designation of the Tivoli Bays area as a National Estuarine Sanctuary.

*1983 Management Plan for the Mid-Hudson Historic Shoreland Scenic District prepared by the Hudson River Shorelands Task Force and Robert M. Toole for the Heritage Task Force for the Hudson River Valley, Inc.

*1984-86	Local Waterfront Revitalization Program planning undertaken by Town with assistance from RPPW Inc.
*1985	Dutchess County Department of Planning draft report, Directions: The Plan for Dutchess County.
*1985	Scenic Roads in the Town designated by the New York State Department of Environmental Conservation.
*1985	Dutchess Land Conservancy formed.
*1985	Dutchess County Natural Resource Inventory published by the Dutchess County Environmental Management Council and Dutchess County Planning Department after nine years preparation.
*1985	Scenic District Handbook and Scenic Roads Handbook prepared by Saratoga Associates in association with Planners East, Inc. for the Heritage Task Force for the Hudson River Valley, Inc.
1986	Purchase of Montgomery Place by Sleepy Hollow Restorations for preservation, public visitation and museum purposes.
1991	The Hudson River National Historic Landmark District was designated.
1993	Designation of Estates District Scenic Area of Statewide Significance and Ulster North Scenic Area of Statewide Significance under Article 42 of the NYS Executive Law.

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS PROGRAM
A PART OF THE NEW YORK COASTAL MANAGEMENT PROGRAM

BACKGROUND

New York State's Coastal Management Program (CMP) includes a total of 44 policies which are applicable to development and use proposals within or affecting the State's coastal area. Any activity that is subject to review under Federal or State laws, or under applicable local laws contained in an approved local waterfront revitalization program will be judged for its consistency with these policies.

Once a determination is made that the proposed action is subject to consistency review, a specific policy aimed at the protection of fish and wildlife resources of statewide significance applies. The specific policy statement is as follows: "Significant coastal fish and wildlife habitats will be protected, preserved, and, where practical, restored so as to maintain their viability as habitats." The New York State Department of Environmental Conservation (DEC) evaluates the significance of coastal fish and wildlife habitats, and following a recommendation from the DEC, the Department of State designates and maps specific areas. Although designated habitat areas are delineated on the coastal area map, the applicability of this policy does not depend on the specific location of the habitat, but on the determination that the proposed action is subject to consistency review.

Significant coastal fish and wildlife habitats are evaluated, designated and mapped under the authority of the Coastal Management Program's enabling legislation, the Waterfront Revitalization and Coastal Resources Act (Executive Law of New York, Article 42). These designations are subsequently incorporated in the Coastal Management Program under authority provided by the Federal Coastal Zone Management Act.

This narrative constitutes a record of the basis for this significant coastal fish and wildlife habitat's designation and provides specific information regarding the fish and wildlife resources that depend on this area. General information is also provided to assist in evaluating impacts of proposed activities on parameters which are essential to the habitat's values. This information is to be used in conjunction with the habitat impairment test found in the impact assessment section to determine whether the proposed activities are consistent with this policy.

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **North and South Tivoli Bays**

Designated: **November 15, 1987**

County: **Dutchess**

Town(s): **Red Hook**

7½' Quadrangle(s): **Saugerties, NY**

Score	Criterion
64	Ecosystem Rarity (ER) The largest undeveloped tidal freshwater wetland complex on the Hudson River, rare in New York State.
39	Species Vulnerability (SV) Osprey (T), least bittern (SC), wood turtle (SC) and spotted turtle (SC); additive division: 25 + 16/2 + 16/4 + 16/8 = 39.
23	Human Use (HU) Part of the Hudson River Estuarine Sanctuary; statewide significance for research, and regional significance for recreational and educa-tional uses. Additive division: 16 + 9/2 + 9/4 = 23.
9	Population Level (PL) Concentration of various wildlife species are unusual in the Hudson Valley.
	Replaceability (R)
1.2	Irreplaceable.

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]

= **162**

DESIGNATED HABITAT: NORTH AND SOUTH TIVOLI BAYS

HABITAT DESCRIPTION:

North and South Tivoli Bays encompass approximately 1,200 acres on the eastern shore of the Hudson River, one half mile south of the Village of Tivoli in the Town of Red Hook, Dutchess County (7.5' Quadrangle: Saugerties, N.Y.). The habitat area includes tidal freshwater marsh, fresh-tidal swamp, bays, shallows, two streams, and adjacent uplands dominated by hardwood forest, mixed forest and fallow fields. The fish and wildlife habitat also includes Cruger and Magdalen Islands. Much of the upland area is owned by the New York State Department of Environmental Conservation as a Wildlife Management Area; the wetland and riverine areas are under the jurisdiction of the State Office of General Services.

FISH AND WILDLIFE HABITAT:

The North and South Tivoli Bays habitat is ecologically unique as the largest freshwater tidal influenced bay and wetland complex surrounded by undeveloped land on the Hudson River. This area is one of four components of the Federally-designated Hudson River Estuarine Sanctuary. A tremendous variety of fish and wildlife are found in the area, including a large number of relatively uncommon species.

Tivoli Bays are important to a variety of fish species in the Hudson River as feeding, spawning and nursery areas. Several commercially important fish species use the bays and the mouths of Stony Creek and the Saw Kill for spawning and feeding. These include striped bass, alewife and blueback herring. Common freshwater species using the bays include largemouth bass, smallmouth bass, white perch and various minnows. Species that appear to be regionally rare that have been found in the bays include American brook lamprey, central mudminnow, northern hogsucker and bridle shiner. The shortnose sturgeon (E) may feed in the tidal channels and river shallows, but this has not been confirmed. An extremely large population of snapping turtles exists in North Tivoli Bay.

Tivoli Bay supports breeding populations of least bittern (SC), American bittern, Virginia rail, marsh wren (formerly long-billed marsh wren), and in some years, sora rail, common moorhen (formerly common gallinule), and occasionally king rail. Many species of waterfowl use the area during the spring and fall migration periods for resting and feeding, including both dabbling ducks in the marshes, and diving ducks in the rifer shallows. The osprey (T) was reportedly nesting in the area in the late 1950's, and is regularly seen here during migration. The Museum of the Hudson Highlands has constructed two experimental nest platforms for osprey in this area. The bald eagle (E) is an occasional visitor. Spotted turtle (SC), wood turtle (SC) and map turtle are also found in the area.

Several rare plant species occur in the Tivoli Bays wetland complex. These include the heartleaf plaintain (proposed for Federal endangered status), golden club, ovate spikerush, Parker's pipewort, Eaton's bur-marigold, estuary beggar-ticks, swamp lousewort and a rare species of panic grass.

Waterfowl hunting and muskrat trapping have been traditional outdoor recreational activities at Tivoli Bays for years. Fishing for striped bass and large and smallmouth bass in the bay area is enjoyed by the local populace. Birdwatchers from throughout the Hudson Valley region visit this area. These activities in combination with nature study produce an estimated 6,600 days of wildlife related recreational use each year. In addition, scientific research conducted on estuarine ecology at Tivoli Bays is of statewide significance.

Under the management of New York State Department of Environmental Conservation, it is anticipated that proposed access improvements and trail development will increase the recreational use in the area. Ongoing ecological research at Tivoli Bays (Bard College Field Station and Experimental Ecological Reserve) has attracted scientists and students from throughout the State and its designation as part of the Hudson River Estuarine Sanctuary will focus additional research and education activities in the Hudson Valley on this area.

IMPACT ASSESSMENT:

A **habitat impairment test** must be met for any activity that is subject to consistency review under federal and State laws, or under applicable local laws contained in an approved local waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area.

The specific **habitat impairment test** that must be met is as follows.

> In order to protect and preserve a *significant* habitat, land and water uses or development shall not be undertaken if such actions would:
>
> - destroy the habitat; or,
>
> - significantly impair the viability of a habitat.

Habitat destruction is defined as the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area. Habitat destruction may be indicated by changes in vegetation, substrate, or hydrology, or increases in runoff, erosion, sedimentation, or pollutants.

Significant impairment is defined as reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, salinity) beyond the tolerance range of an organism. Indicators of a significantly impaired habitat focus on ecological alterations and may include but are not limited to reduced carrying capacity, changes in community structure (food chain relationships, species diversity), reduced productivity and/or increased incidence of disease and mortality.

The *tolerance range* of an organism is not defined as the physiological range of conditions beyond which a species will not survive at all, but as the ecological range of conditions that supports the species population or has the potential to support a restored population, where practical. Either the loss of individuals through an increase in emigration or an increase in death

rate indicates that the tolerance range of an organism has been exceeded. An abrupt increase in death rate may occur as an environmental factor falls beyond a tolerance limit (a range has both upper and lower limits). Many environmental factors, however, do not have a sharply defined tolerance limit, but produce increasing emigration or death rates with increasing departure from conditions that are optimal for the species.

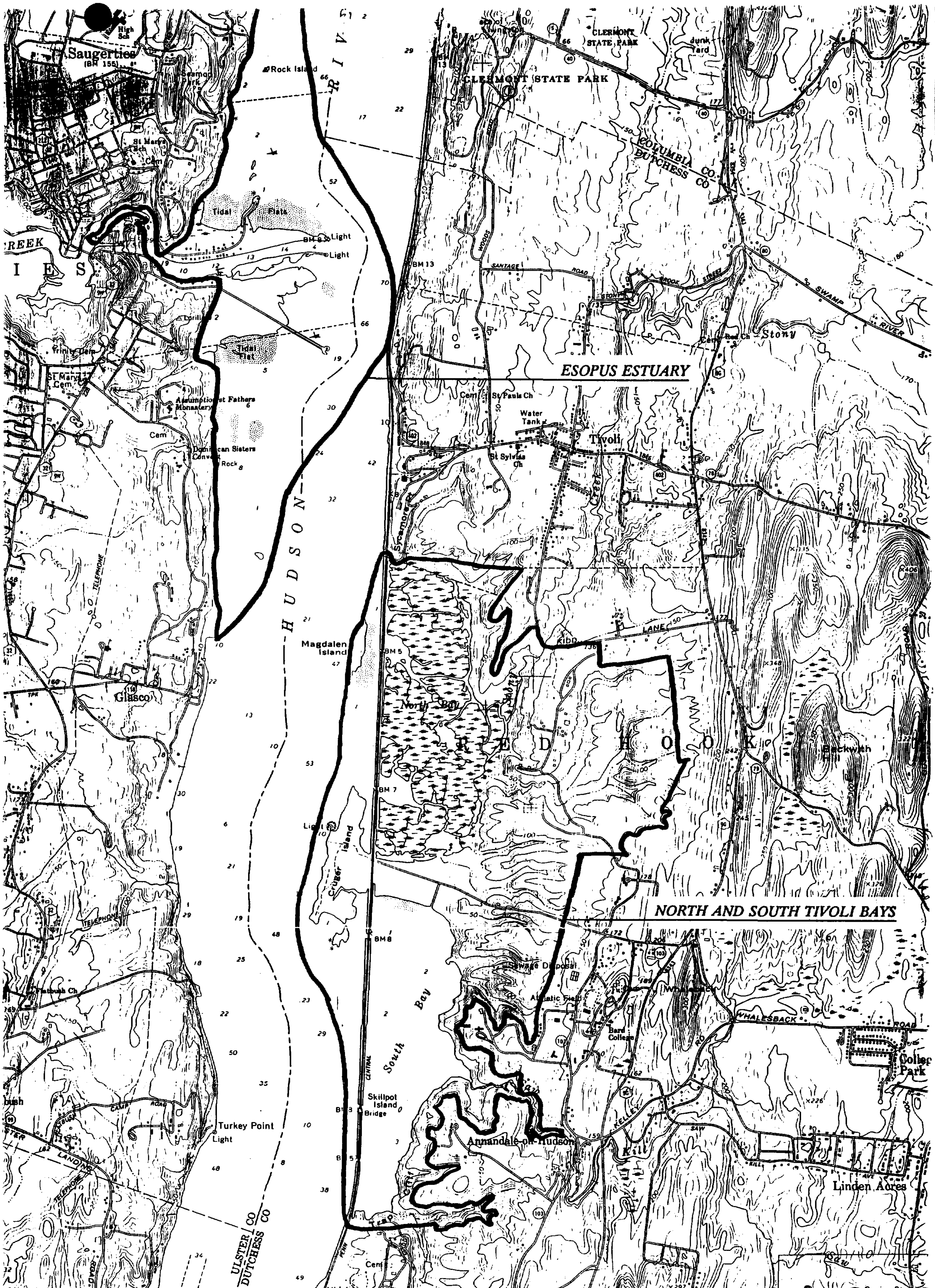
The range of parameters which should be considered in appplying the habitat impairment test include but are not limited to the following:

1. physical parameters such as living space, circulation, flushing rates, tidal amplitude, turbidity, water temperature, depth (including loss of littoral zone), morphology, substrate type, vegetation, structure, erosion and sedimentation rates;
2. biological parameters such as community structure, food chain relationships, species diversity, predator/prey relationships, population size, mortality rates, reproductive rates, meristic features, behavioral patterns and migratory patterns; and,
3. chemical parameters such as dissolved oxygen, carbon dioxide, acidity, dissolved solids, nutrients, organics, salinity, and pollutants (heavy metals, toxics and hazardous materials).

Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

It is essential that any potential impacts on North and South Tivoli Bays be evaluated with respect to its use for environmental research and education, and the need to maintain natural or controlled experimental conditions. Any activity that impacts tidal flows in the bay and wetlands may have serious consequences for the fish and wildlife, since this parameter may significantly affect the vegetative composition. Additionally, changes in existing patterns of water quality, turbidity, temperature or depth would impact directly on the species using this freshwater wetland and bay complex.

Freshwater inflows from Stony Creek and the Saw Kill are especially important. Non-point source pollutants from the watershed including herbicides could have a detrimental effect on the fish and wildlife habitat. Elimination of wetland or shallow areas through dredging, filling, or bulkheading would result in a direct loss of valuable habitat. Activities that would subdivide this largely undeveloped area into smaller fragments should be restricted. Extensive cutting of the forest vegetation surrounding the bays could adversely affect use of the area by many fish and wildlife species.



SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

North and South Tivoli Bays / Esopus Estuary (in part)

Miles 0 ½ 1

N

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Prepared by T. Hart and G. Capobianco September 1990

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **Esopus Estuary**

Designated: **November 15, 1987**

County(ies): **Ulster; Dutchess**

Town(s): **Saugerties; Red Hook**

7½' Quadrangle(s): **Saugerties, NY**

Score	Criterion
16	Ecosystem Rarity (ER) One of the major freshwater tributaries of the Hudson River, including a diversity of natural estuarine communities; unusual in the ecological subzone.
49	Species Vulnerability (SV) Shortnose sturgeon (E) reside in the area. Osprey (T) concentrate here during spring migrations. Additive Division: 36 x 25/2 = 49.
9	Human Use (HU) One of the major recreational fishing areas; attracts visitors from throughout the Hudson Valley and beyond.
9	Population Level (PL) Concentrations of various estuarine and freshwater fish species are unusual in the Hudson Valley.
1.2	Replaceability (R) Irreplaceable.

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]

= **98**

DESIGNATED HABITAT: ESOPUS ESTUARY

HABITAT DESCRIPTION:

Esopus Estuary is located just east of the Village of Saugerties in the Town of Saugerties, Ulster County and in the Town of Red Hook, Dutchess County (7.5' Quadrangle: Saugerties, N.Y.). Esopus Estuary is an approximate 700 acre area that includes: the lower portion of Esopus Creek; fresh-tidal wetlands and littoral zone areas; and a deepwater section of the Hudson River. The tidal portion of Esopus Creek is heavily developed on both banks. Development includes residences, marinas, and industries.

FISH AND WILDLIFE HABITAT:

Esopus Creek is one of the primary freshwater tributaries of the Hudson River. Esopus Creek, while minimal in accessible mileage to Hudson River fish, is extremely important to the fisheries resource. The creek, from its mouth to the first impassable barrier (1.3 miles), serves as a spawning ground, nursery area, and feeding area for striped bass, white perch, shad, alewife, blueback herring, smelt, and many resident freshwater species including largemouth and smallmouth bass. The littoral zone of the Hudson River adjacent to the creek mouth is also an important spawning ground for shad, and serve as spawning, nursery, and feeding areas for striped bass, white perch, herring, smelt, and most of the resident freshwater species. The adjoining deepwater area of the Hudson serves as post-spawning and wintering habitat for shortnose sturgeon (E).

Fishing pressure is heavy on Esopus Creek during the entire season. Several black bass (smallmouth and largemouth) fishing tournaments are held here each summer, with participation from residents throughout the Hudson Valley. There is also important recreational fishing for striped bass in the area. Tidal marshes and shallows in the estuary also provide resting and feeding areas for migrating waterfowl, including black ducks and mallard. This results in significant hunting pressure from residents of the lower Hudson Valley region.

The extensive and varied fresh-tidal wetland at the mouth of Esopus Creek is important to many species of waterfowl throughout the year. Osprey (T) congregate at the mouth of the creek during spring migration (mid-April through May) where the shallows offer prime foraging conditions.

Several rare plant species have also been reported in this area.

IMPACT ASSESSMENT:

A **habitat impairment test** must be met for any activity that is subject to consistency review under federal and State laws, or under applicable local laws contained in an approved local

waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area.

The specific **habitat impairment test** that must be met is as follows.

> In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such actions would:
>
> - destroy the habitat; or,
>
> - significantly impair the viability of a habitat.

Habitat destruction is defined as the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area. Habitat destruction may be indicated by changes in vegetation, substrate, or hydrology, or increases in runoff, erosion, sedimentation, or pollutants.

Significant impairment is defined as reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, salinity) beyond the tolerance range of an organism. Indicators of a significantly impaired habitat focus on ecological alterations and may include but are not limited to reduced carrying capacity, changes in community structure (food chain relationships, species diversity), reduced productivity and/or increased incidence of disease and mortality.

The *tolerance range* of an organism is not defined as the physiological range of conditions beyond which a species will not survive at all, but as the ecological range of conditions that supports the species population or has the potential to support a restored population, where practical. Either the loss of individuals through an increase in emigration or an increase in death rate indicates that the tolerance range of an organism has been exceeded. An abrupt increase in death rate may occur as an environmental factor falls beyond a tolerance limit (a range has both upper and lower limits). Many environmental factors, however, do not have a sharply defined tolerance limit, but produce increasing emigration or death rates with increasing departure from conditions that are optimal for the species.

The range of parameters which should be considered in appplying the habitat impairment test include but are not limited to the following:

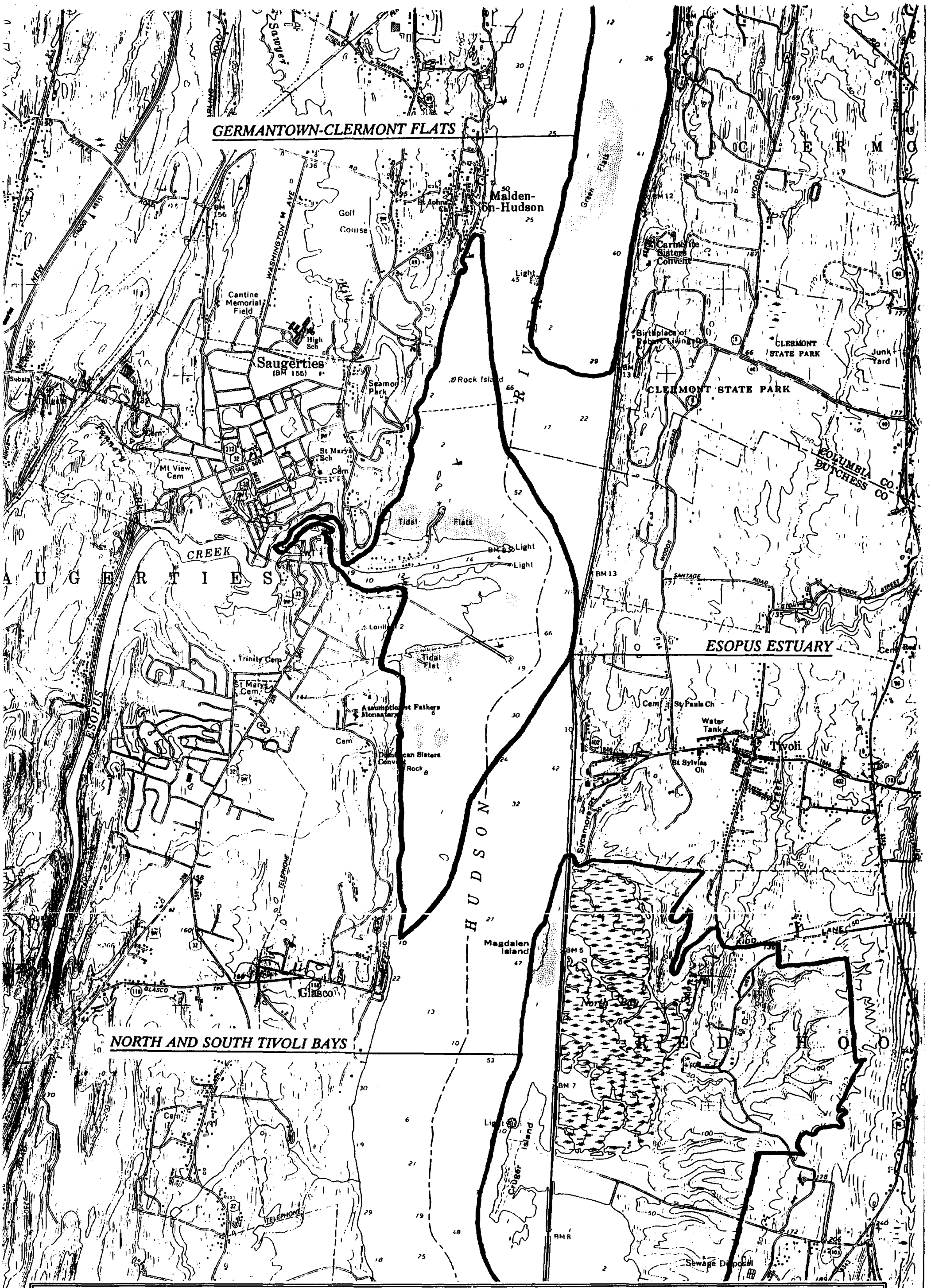
1. physical parameters such as living space, circulation, flushing rates, tidal amplitude, turbidity, water temperature, depth (including loss of littoral zone), morphology, substrate type, vegetation, structure, erosion and sedimentation rates;

2. biological parameters such as community structure, food chain relationships, species diversity, predator/prey relationships, population size, mortality rates, reproductive rates, meristic features, behavioral patterns and migratory patterns; and,
3. chemical parameters such as dissolved oxygen, carbon dioxide, acidity, dissolved solids, nutrients, organics, salinity, and pollutants (heavy metals, toxics and hazardous materials).

Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

Any activity that would substantially degrade water quality, increase turbidity or sedimentation, reduce flows, alter tidal fluctuations, or increase water temperatures in Esopus Estuary would result in significant impairment of the habitat. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides, or insecticides) may result in significant adverse impacts on fish or wildlife populations. Of particular concern in this tributary are the potential effects of upstream disturbances, including water withdrawals, impoundments, stream bed disturbances, and effluent discharges. Development of hydroelectric facilities or municipal water supplies should only be allowed with run-of-river operations and appropriate minimum flow restrictions, respectively.

Clear water areas at the mouths of major tributary streams are important feeding areas for osprey during migration. Human disturbance around the mouth should be minimized when osprey are in the area. Additional barriers to fish migration, whether physical or chemical, would have significant impacts on fish populations in the creek as well as in the Hudson River. Habitat disturbances would be most detrimental during fish spawning and incubation periods, which generally extend from April through July for most warmwater species. Elimination of wetlands or significant human encroachment into the area, through dredging or filling, would result in a direct loss of valuable fish and wildlife habitat.



SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

Esopus Estuary / Germantown-Clermont Flats (In part) / North and South Tivoli Bays (in part)

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

Miles

0 ½ 1

N

Prepared by T. Hart and G. Capobianco September 1990

COASTAL FISH & WILDLIFE HABITAT RATING FORM

Name of Area: **The Flats**

Designated: **November 15, 1987**

County(ies): **Ulster; Dutchess**

Town(s): **Ulster, Kingston; Red Hook, Rhinebeck**

7½' Quadrangle(s): **Kingston East, NY**

Score	Criterion
64	Ecosystem Rarity (ER) An extensive area of shallow, freshwater, tidal flats; rare in New York State.
0	Species Vulnerability (SV) Shortnose sturgeon (E) occur in the area, but habitat use is not adequately documented.
18	Human Use (HU) Area supports a commercial shad fishery of statewide significance; recreational fishing attracts anglers from Ulster and Dutchess Counties. Additive division: 16 + 4/2 = 18.
16	Population Level (PL) One of the major shad spawning areas in the Hudson River; concen-trations are unusual in New York State.
1.2	Replaceability (R) Irreplaceable.

SIGNIFICANCE VALUE = [(ER + SV + HU + PL) X R]

= **118**

DESIGNATED HABITAT: THE FLATS

HABITAT DESCRIPTION:

The Flats is located in the middle of the Hudson River, roughly between the hamlet of Barrytown and the City of Kingston, in the Town of Ulster and City of Kingston, Ulster County, and the Towns of Red Hook and Rhinebeck, Dutchess County (7.5' Quadrangle: Kingston East, N.Y.). The fish and wildlife habitat is an approximate four and one-half mile long underwater ridge, most of which is shallow (less than 10 feet deep at mean low water), freshwater, intertidal mud flats, and subtidal aquatic beds (predominantly wild celery and Eurasian water milfoil). The Flats is bordered to the west by the Hudson River navigation channel, resulting in potential habitat disturbance from periodic maintenance dredging.

FISH AND WILDLIFE VALUES:

The Flats is one of the largest contiguous areas of shallow, freshwater, tidal flats in the Hudson River. Areas such as this are extremely valuable fish and wildlife habitats, and are not found in other coastal regions of New York State.

The Flats is one of the primary Hudson River spawning grounds for American shad. Between mid-March and June, adult shad concentrate between Kingston and Coxsackie, and spawning occurs primarily on extensive flats, shoals, sandbars, and shallow areas near the mouths of tributary creeks. These fish may move into adjacent deeper areas while tidal currents are strong. Reproduction by shad in The Flats area supports much of the commercial gillnet fishery for this species on the Hudson River, which is one of the largest such fisheries in the U.S. The importance of the Flats is highlighted by the fact that it is the only area on the Hudson where commercial fishing is prohibited during the shad spawning period. The Flats also serves as spawning, nursery, and feeding habitat for striped bass, white perch, and various resident freshwater species. Concentrations of the early developmental stages of several anadromous species occur in this area.

Shortnose sturgeon (E) and Atlantic sturgeon may also use the area to feed (especially during slack water in late spring and summer), or as a resting area during river-wide movements, or as a slightly preferable habitat when water temperatures are warmer than in adjacent deeper waters (i.e., in early spring and fall). High catches of shortnose sturgeon occur in channels adjoining The Flats, particularly on the east side. The abundant fisheries resources in this area provide an excellent recreational fishery, attracting anglers from nearby portions of Ulster and Dutchess Counties.

Significant concentrations of waterfowl also occur in The Flats area. Dense growths of wild celery provide valuable feeding areas for many species of ducks, and are especially important during spring (March-April) and fall (mid-September - early December) migrations. Concentrations of diving ducks, such as scaups, redhead, canvasback, common goldeneye, and mergansers, are regularly found out in The Flats. During calm weather, this open river area is also used by dabbling ducks, including mallard, black duck, and blue-winged teal, and provides a refuge from hunting pressure in shoreline areas.

IMPACT ASSESSMENT:

A **habitat impairment test** must be met for any activity that is subject to consistency review under Federal and State laws, or under applicable local laws contained in an approved local waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area.

The specific **habitat impairment test** that must be met is as follows.

> In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such actions would:
>
> - destroy the habitat; or,
>
> - significantly impair the viability of a habitat.

Habitat destruction is defined as the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area. Habitat destruction may be indicated by changes in vegetation, substrate, or hydrology, or increases in runoff, erosion, sedimentation, or pollutants.

Significant impairment is defined as reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, salinity) beyond the tolerance range of an organism. Indicators of a significantly impaired habitat focus on ecological alterations and may include but are not limited to reduced carrying capacity, changes in community structure (food chain relationships, species diversity), reduced productivity and/or increased incidence of disease and mortality.

The *tolerance range* of an organism is not defined as the physiological range of conditions beyond which a species will not survive at all, but as the ecological range of conditions that supports the species population or has the potential to support a restored population, where practical. Either the loss of individuals through an increase in emigration or an increase in death rate indicates that the tolerance range of an organism has been exceeded. An abrupt increase in death rate may occur as an environmental factor falls beyond a tolerance limit (a range has both upper and lower limits). Many environmental factors, however, do not have a sharply defined tolerance limit, but produce increasing emigration or death rates with increasing departure from conditions that are optimal for the species.

The range of parameters which should be considered in appplying the habitat impairment test include but are not limited to the following:

1. physical parameters such as living space, circulation, flushing rates, tidal amplitude, turbidity, water temperature, depth (including loss of littoral zone), morphology, substrate type, vegetation, structure, erosion and sedimentation rates;

2. biological parameters such as community structure, food chain relationships, species diversity, predator/prey relationships, population size, mortality rates, reproductive rates, meristic features, behavioral patterns and migratory patterns; and,

3. chemical parameters such as dissolved oxygen, carbon dioxide, acidity, dissolved solids, nutrients, organics, salinity, and pollutants (heavy metals, toxics and hazardous materials).

Although not comprehensive, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

Any activity that would substantially degrade water quality in The Flats would affect the biological productivity of this area and result in significant impairment of the habitat. Species of fish and wildlife may be adversely affected by water pollution, such as chemical contamination (including food chain effects), oil spills, excessive turbidity or sedimentation, and waste disposal. Continued efforts should be made to improve water quality in the Hudson River, which is primarily dependent upon controlling discharges from combined sewer overflows, industrial point sources, and ships. Oil and other hazardous substance spills are an especially significant threat to this area, because the biological activity of tidal flats is concentrated at the soil surface, much of which may be directly exposed to these pollutants. Disruption of plant communities or benthos in the area through dredging or filling (including dredge spoil disposal), would reduce its value as a fish and wildlife habitat; no new navigation channels should be cut through the area.

Thermal discharges, depending on time of year, may have variable effects on use of the area by aquatic species; shad spawning activities and survival are directly affected by water temperature. Installation and operation of water intakes could have significant impacts on fish populations in the area, through impingement of juvenile and adult fish, or entrainment of eggs and larval stages.

DESIGNATED HABITAT: THE FLATS

HABITAT DESCRIPTION:

The Flats is located in the middle of the Hudson River, roughly between the hamlet of Barrytown and the City of Kingston, in the Town of Ulster and City of Kingston, Ulster County, and the Towns of Red Hook and Rhinebeck, Dutchess County (7.5' Quadrangle: Kingston East, N.Y.). The fish and wildlife habitat is an approximate four and one-half mile long underwater ridge, most of which is shallow (less than 10 feet deep at mean low water), freshwater, intertidal mud flats, and subtidal aquatic beds (predominantly wild celery and Eurasian water milfoil). The Flats is bordered to the west by the Hudson River navigation channel, resulting in potential habitat disturbance from periodic maintenance dredging.

FISH AND WILDLIFE VALUES:

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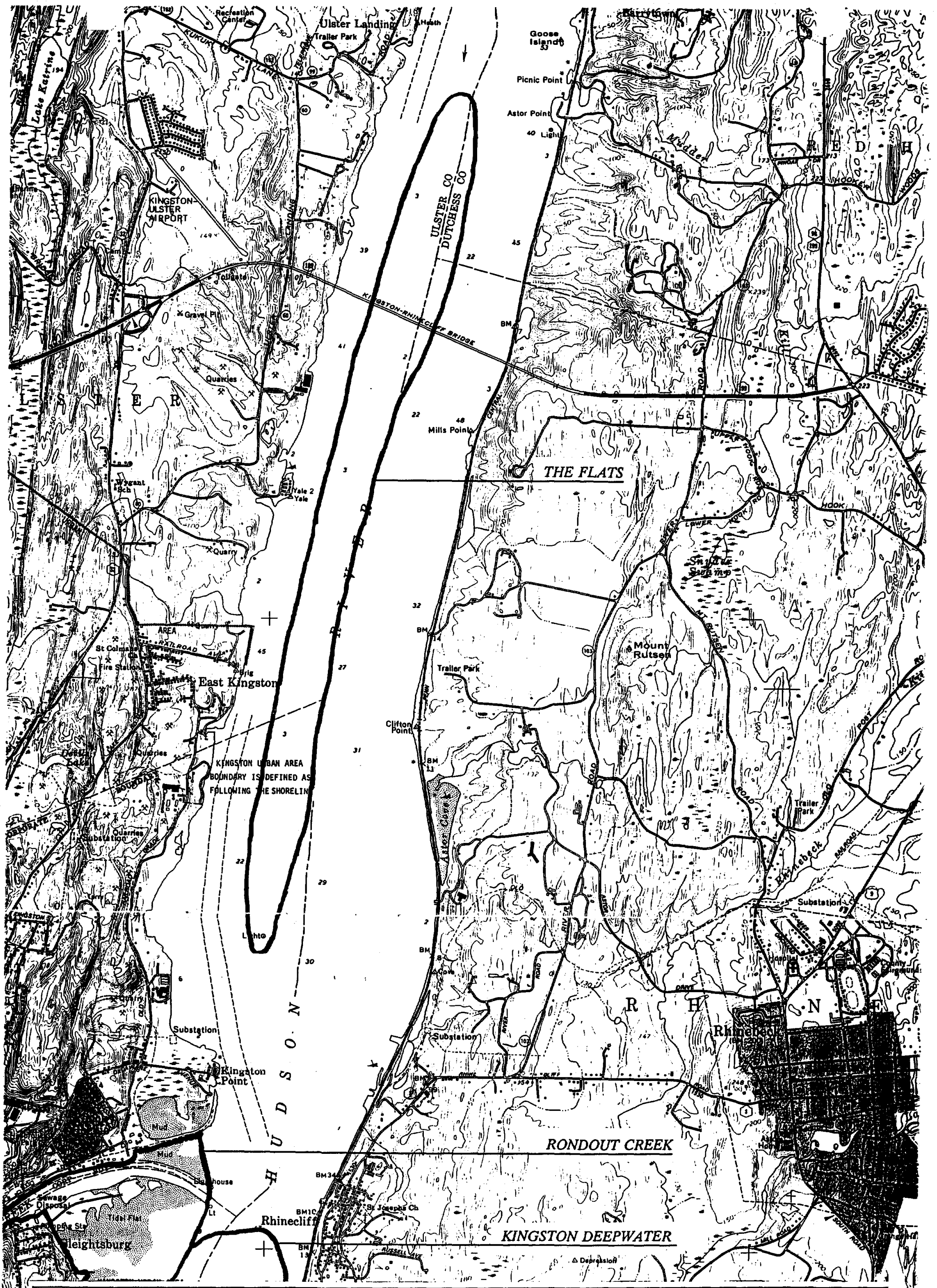

SIGNIFICANT COASTAL FISH AND WILDLIFE HABITATS

The Flats / Kingston Deepwater (in part) / Rondout Creek (in part)

New York State Department of State Division of Coastal Resources and Waterfront Revitalization

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Prepared by T. Hart and G. Capobianco September 1990

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