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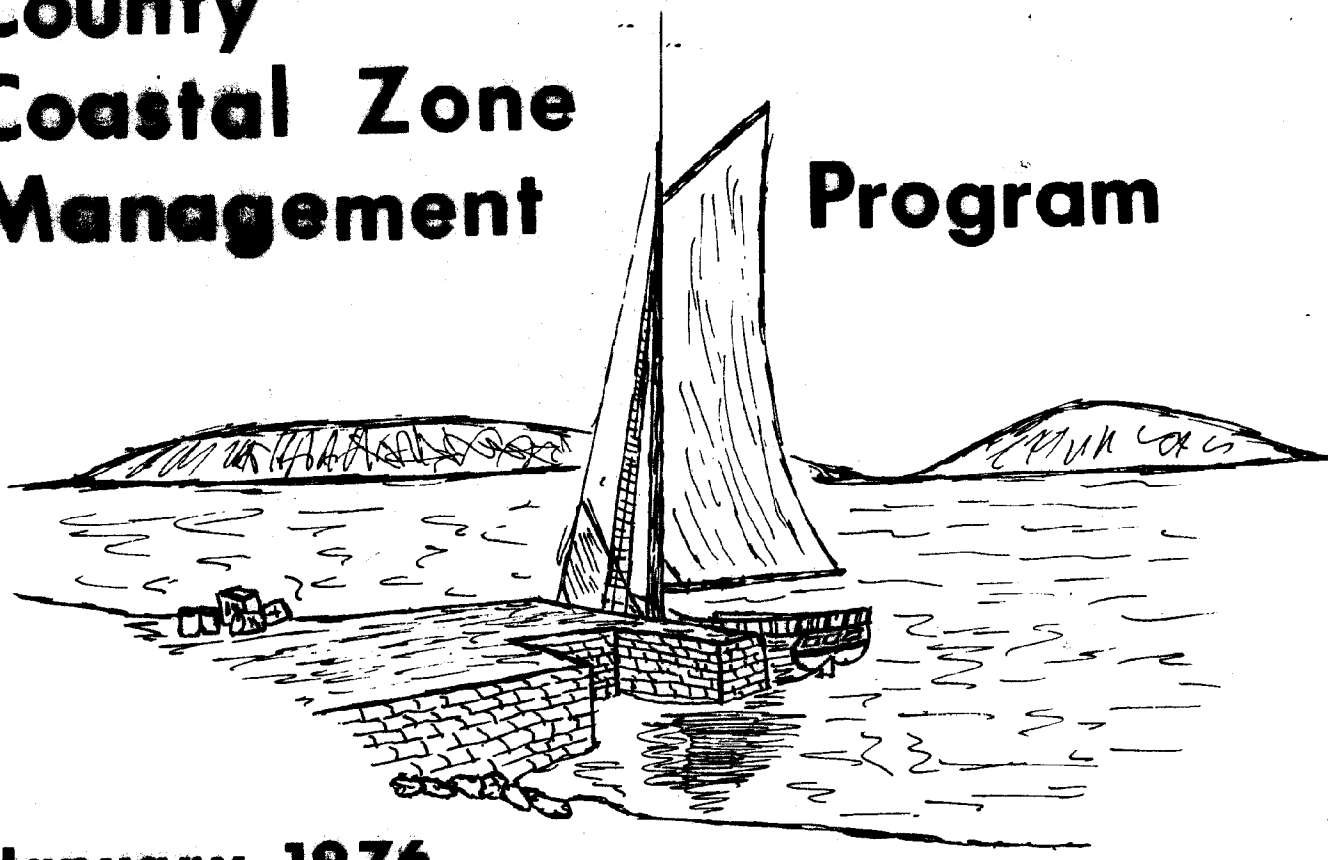
Columbia County Coastal Zone Management Program



January 1976

Coastal Zone Managment Program.

PREPARED BY THE
COLUMBIA COUNTY PLANNING DEPARTMENT
IN COOPERATION WITH
COUNTY ENVIRONMENTAL MANAGEMENT COUNCIL

The preparation of this report by the Columbia County Planning Department, was financially-aided through Federal grant #04-5-158-50002 from the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972. This report was prepared under the Coastal Zone Management Act of 1972 for the Division of State Planning, Department of State.

Date Prepared: January 1976

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COLUMBIA COUNTY PLANNING BOARD

247 WARREN STREET, HUDSON, NEW YORK 12534

Telephone (518) 828-3375

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AMAR S. BANDEL
Planning Director

May 21, 1976

Mr. Henry G. Williams
Director of State Planning
Department of State
162 Washington Avenue
Albany, New York 12231

Dear Mr. Williams:

I am pleased to submit the report summarizing our first year activities in the Coastal Zone Management Program. This report represents an assessment of the existing environmental and social conditions of the Hudson River area of Columbia County and indicates areas which need further study before a management program can be devised.

As the report is designed to be used by the general public, the order and titles of sections do not follow those of the state contract although all contract points have been addressed. An explanation of how the report corresponds to the contract follows.

We found our first year's program to be a rewarding project and I hope that it will prove to be as informative to state and local agencies. We look forward to the 1976 program.

Very truly yours,

Amar S. Bandel
Planning Director

ASB:cm

Contract Section	Report Section
No. 1 Goals and Objectives	Goals & Objectives
No. 2 Information Sources and Requirements	Appendix-Bibliography/Information Sources and Requirements
No. 3 Public Participation	Public Participation
No. 4 Intergovernmental Process	Land Use Planning, Future Planning Efforts
No. 6 Coastal Zone Boundaries	Zone Boundaries
No. 7 Analysis of Natural Resources	Coastal Zone Ecology, Natural Areas of Concern, Erosion, Mineral Resources, Land & Water Use Conflicts with Environmental Quality
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No. 9 Legal and Institutional	Land Use Planning, Legislation

Remaining sections are used as supportive material.

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PREFACE

The Federal Coastal Zone Management Act of 1972 enables the coastal states to devise management plans for their coastal areas in an effort to ensure that future development in these areas is done in a manner which will complement the various environmental, cultural, social and economic factors involved. As part of New York's sub-contracting program, Columbia County was able to participate by doing studies which will lead to the creation of a plan to more effectively utilize the resources of the Hudson River area which was designated a "coast" under the federal act. Misuse or disuse of the river has long been an area of concern and this study will be a step toward the better use of the coastal environment.

The first year's program, summarized in this report, was devoted to evaluating the existing conditions of the county's shoreline so that in the second year this information could be used to begin formulation of a method to satisfy the needs identified during the first year. The river and its shore areas have the potential of offering many opportunities to all aspects of county life, but have been neglected in the past for one reason or another. Steep banks often rising 100 or more feet stand on the edge of the water and leave only a narrow strip of level land at their bases. This is often entirely occupied by railroad tracks which offer an additional barrier to river use. Only where there are breaks in this topography, as at Stuyvesant, Hudson, and Germantown, does one find development of any substantial size. This setting offers a challenging environment to anyone planning to use the coastal area and it is hoped that this study will discover ways to overcome these and other barriers to effective use of the coastal zone.

Many factors are involved in understanding the coastal zone. The ecology of the area and the natural processes which are at work need to be identified before any kind of controls or management procedures can be implemented. Investigations into the types of existing land use were made in an effort to determine the growth patterns

which will influence future development. The controls used to guide this growth were assessed as were other state and federal programs which influence the kinds of activities which can occur. Public interests were assessed to determine what needs were greatest for the coastline and to get a feeling of the kind of character that county residents wanted their home to present. This study represents an investigation into these areas to provide an inventory of existing conditions and what should be emphasized in an effective coastal zone management program.

INTRODUCTION

In considering the future of Columbia County's coastal region there are several routes that can be taken. One extreme position is the feeling that in view of the relatively light development of the coastline so far in the county, a greater emphasis should be placed on commercial and industrial development along the shoreline. Developmental controls should be quite lax to encourage growth of business and residential areas. This approach to land and water management would at best result in a short term economic gain for Columbia County, but it would also cause harm to the coastal zone's often fragile ecosystems, waste natural and aesthetic resources, and eventually undermine the county's ability to maintain a stable economic base in this area.

The opposite point of view states that all remaining open lands along the river should be preserved as natural areas in order to protect the river's natural resources. While protection of these valuable resources is important, this approach would not permit growth of the economic, residential, and recreational uses necessary to a balanced economy.

Perhaps the most reasonable approach to determining the use of lands and waters of the coastal zone is one based upon the premise that each area has a distinct character which will determine the possible uses for it. Determining the best use for each area assumes the proposition that any place is the sum of its historical, physical, and biological processes, that these processes constitute social values, that each has an intrinsic suitability for certain land uses, and that certain areas lend themselves to multiple land uses.

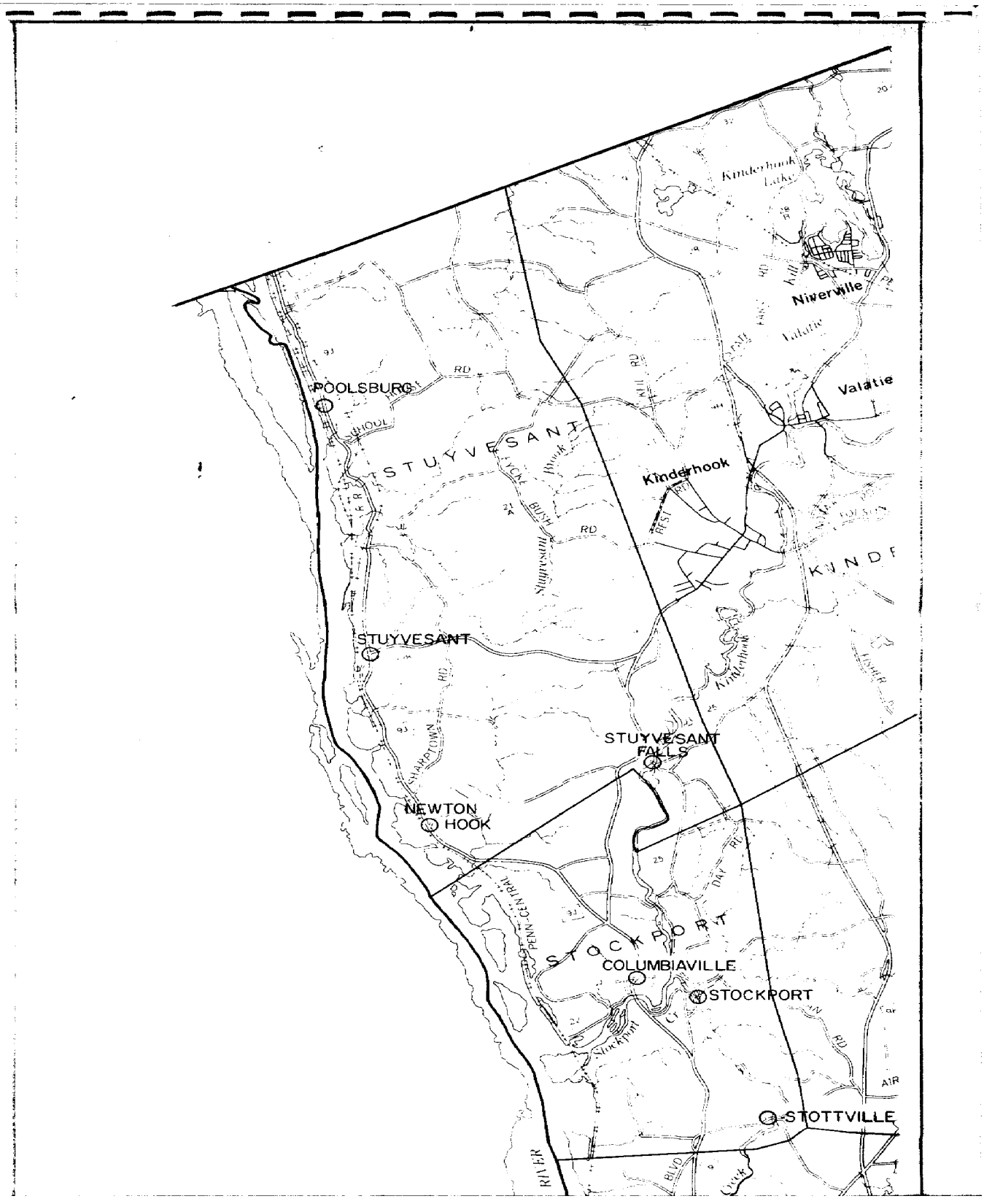
It is important to recognize the potentials and limitations of land and water areas, determine those which will present opportunities to only specified uses and those where limitations to diversified activities are not quite as severe. Expansion of

industrial, residential, commercial, recreational and agricultural activities is not only inevitable, but can be beneficial to an area when conducted in a manner compatible with the natural and cultural values involved.

The Coastal Zone Management Program

Realizing that the careful management of the nation's coastal areas is of major importance to the continued well being of the country, and realizing that in the past these areas and their various resources have often been neglected or abused, the federal government passed the Coastal Zone Management Act. This act created a grant program to be used by the states for developing systems for more effectively protecting and utilizing the land and water resources of the coastal zones. The Hudson River, as far upstream as the Troy dam, was designated a coastal zone under the Act and so the areas along the river were provided with a valuable tool for better managing these resources.

Columbia County was able to conduct its own study under New York State's sub-contracting program and through the guidance of the Columbia County Planning Department and Environmental Management Council an analysis of the county's coastal resources was possible.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STOTTVILLE
Niverville
Valatie
Kinderhook
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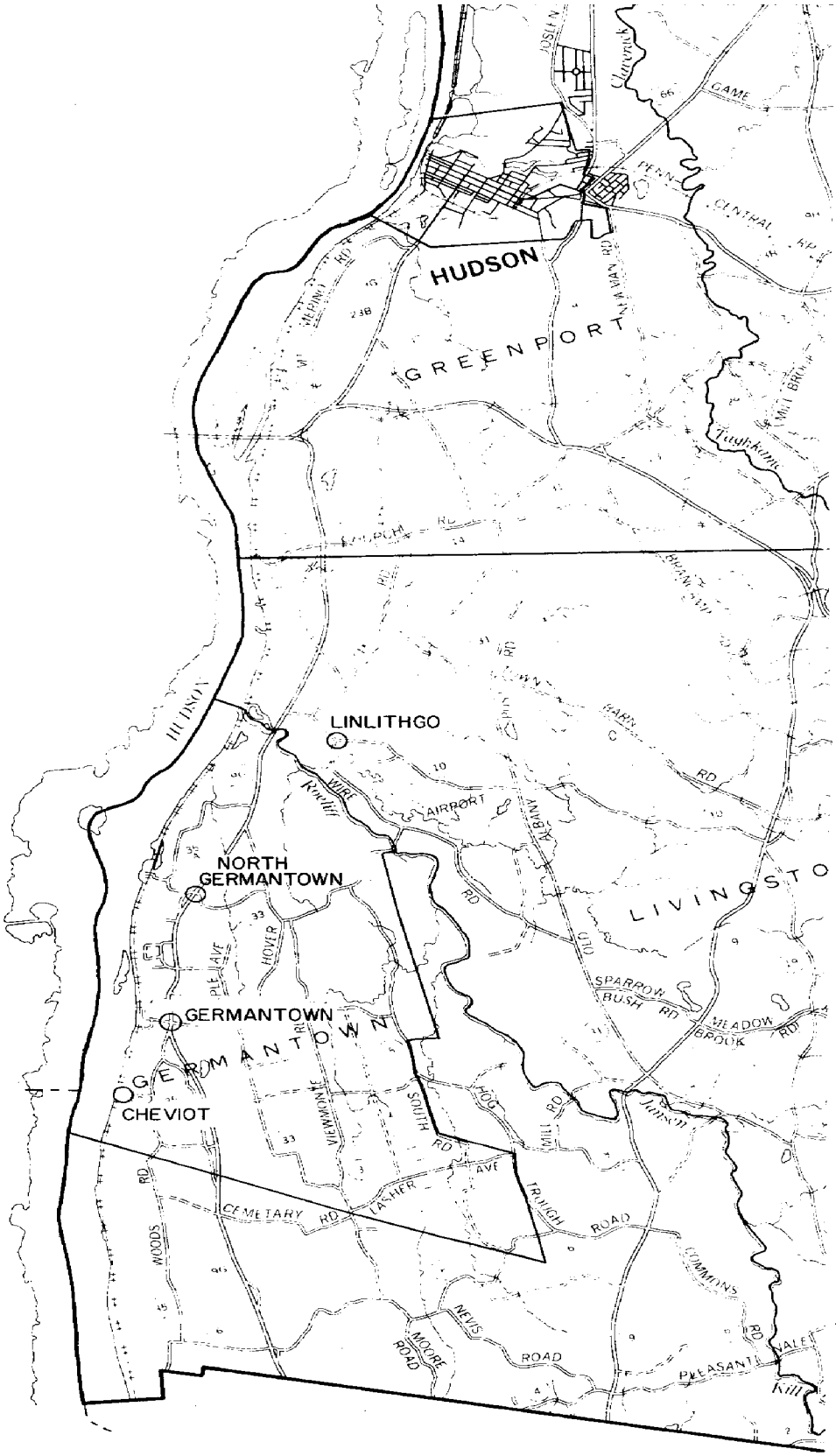

COLUMBIA COUNTY COASTAL ZONE MANAGEMENT PROGRAM
MUNICIPALITIES & HAMLETS

THE PREPARATION OF THIS MAP BY THE COLUMBIA COUNTY PLANNING DEPARTMENT, WAS FINANCIALLY-AIDED THROUGH FEDERAL GRANT #04-5-158-50002 FROM THE OFFICE OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, UNDER THE COASTAL ZONE MANAGEMENT ACT OF 1972. THIS MAP WAS PREPARED UNDER THE COASTAL ZONE MANAGEMENT ACT OF 1972 FOR THE DIVISION OF STATE PLANNING, DEPARTMENT OF STATE.

DATE PREPARED: JANUARY 1976

SCALE: 1" = 1 MILE

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PUBLIC PARTICIPATION

An important component of the total coastal zone study is the input of public interests into the procedure used to develop priorities and objectives for the program and for review of the program's progress as the various milestones are achieved.

To provide a structure by which public review could be received in a fairly efficient manner, two committees were established.

The County Environmental Management Council is an advisory body to the County Board of Supervisors on matters of environmental concern, and is composed of citizen representatives from 13 towns in Columbia County. A special committee was established by the council to work with the Planning Department and comment on some of the environmental aspects of the coastal zone study. Monthly reports were made to the council on the program's progress and are summarized in the Appendix.

One specific issue of the coastal area became a point of concern to the Council members and they decided to investigate it more deeply. The Army Corps of Engineers proposed a dredging of certain reaches of the River with a subsequent deposition of dredge spoils on adjoining land areas. To promote the disposal of this material in a manner which would be compatible with environmental parameters and municipal plans for shoreline development, the Corps of Engineers was consulted, as well as local public officials, to coordinate the needs of all parties involved. A graphic description of this project is presented in the Appendix.

The second committee was established by contacting the planning boards of the seven municipalities in the coastal zone. Each planning board sent at least one representative, and as a body served to help identify the needs and objectives that their towns faced,and further assisted by commenting on some of the social and economic

considerations that must be a part of the coastal zone program.

The first meeting held with this committee served to introduce the participants to the Coastal Zone Management Program (CZM). The mechanics of program development were explained, with an emphasis on the importance of public contributions throughout the program's duration. A handout outlining the progression leading up to a management program was discussed and a presentation was made on the importance of the river's natural features. The initial responses from those present indicated several areas of concern to coastal residents including the condition of many of the coastal bays and wetlands, the lack of recreational access to the River, construction of a proposed nuclear power plant on the Greene County shore, and increased residential development in the southern towns. Planning board representatives were asked to confer with their respective boards and determine any additional areas of concern.

A second meeting with this committee served to review a prepared paper outlining eight major areas of the coastal environmental makeup and some of the problems and objectives which could be addressed in the study. Additional specific areas of concern were mentioned for inclusion in the program.

Staff members attended several meetings with local planning boards and explained the methodology by which the CZM program would be developed and how it would interact with existing programs influencing local activities. Periodic progress reports and discussions were conducted with members of the County Board of Supervisors and County Planning Board on a formal and informal basis in an effort to keep these bodies informed on progress made and to receive a corresponding feedback.

In addition to these more formal presentations, problems facing the river area were discussed with other interested parties. Informal discussions were held

with the Hudson River Valley Commission on the future of the river islands, the U.S. Coast Guard on shipping practices and regulations, the Army Corps of Engineers on dredging projects and deposition of spoils in the area, the Soil Conservation Service on various aspects of soil and slope utility, the County Cooperative Extension on agricultural practices along the river, and various individuals representing commercial, industrial, and recreational interests.

Copies of the draft edition of this report were circulated to all members of the Environmental Management Council, planning board representatives, members of the County Planning Board, supervisors from coastal municipalities, and other interested parties. Their comments are reflected in the revisions made in this final report.

To reach the general public with information on the coastal zone program, articles prepared by the Planning Department were submitted to a newspaper having a circulation the length of the coastal zone. These articles appear in the Appendix. It is most important to have a substantial public input into the planning program. At the present time, local government has the power to make the most significant land use control decisions. Only if the public and local officials participate in and support the planning process will a coastal zone water and land use program succeed in Columbia County.

GOALS AND OBJECTIVES OF STUDY

Certain goals and objectives must be established to serve as guideline for the coastal zone program development, so that what is achieved will comprehensively identify the major issues of the area and guide the formation of methods for satisfying whatever problems are associated with these issues.

A discussion of some of the major topics for consideration follows.

I Water Quality

The quality of the water of the Hudson River in Columbia County is the highest of any portion of the river south of its confluence with the Mohawk River at Cohoes, with an "A" quality rating for most of its run along the county shore. This rating is determined by the State Department of Environmental Conservation and indicates that the water has been found acceptible for a public water supply with appropriate treatment.

While in general this water quality is enjoyed in the various aquatic activities in the county, problem areas do exist. Of the three main population centers along the coastline, Germantown, Hudson, and Stuyvesant Landing, only Hudson has any kind of community sewerage system to handle the concentrations of liquid wastes at these areas. Germantown has investigated a community system, but has delayed construction until financial conditions improve. Stuyvesant will be experiencing a more pronounced need for a collection system as predicted growth occurs in this hamlet. Hudson's sewage treatment process provides all but a small portion of the city with primary treatment. Storm water and sewage are collected together, with a shunt available to divert heavy flow directly to the river.

Pesticide and fertilizer runoffs from adjacent agricultural activities have presented a more subtle, but widespread influence on water quality. The high output of agricultural products per acre of land that we enjoy today is a direct result of a high

input of nutrients and pest control materials. This condition almost inevitably leads to a surface runoff or soil leaching of chemicals to a water course, with a negative effect on the water related wildlife occasionally occurring.

The major source of pollutants which enter the Hudson from Columbia County is soil erosion. Banks devoid of vegetation, plowed fields, construction sites, are all contributing factors to this problem, most apparent after any prolonged rain. Efforts to improve soil stabilization should be a major area of concern in any efforts to improve water quality.

II Preservation of Wetlands

The marshlands and tidal flats of the river are one of the area's most important resources, but are also one of the most abused and neglected areas of the coastal zone. By definition, a wetland is an intermediate area between open water and dry land. This characteristic makes it a unique and important type of area, but also has resulted in its mistreatment. Historically, it has generally been found to be much easier to plan for the use of open water or solid land areas, and so the intermediate wetlands have often been pushed into one category or the other by dredging or filling.

While some wetlands have been lost through these activities, others have been created, although usually unplanned. Railroad construction in the 19th century dammed off many small bays along the coastline. With free flow access to the river restricted, these areas collected most of the soil and vegetative particles that would previously have been washed away, and gradually developed into the present wetlands. Channel dredging and consequent deposition of dredged materials, begun in 1929 and continuing at intervals since then, has created a number of sand bars and submerged flats. Nutrient deposition in the sheltered areas around these bars have resulted in the creation of more wetlands.

The beneficial functions of the river's wetlands are numerous. In periods of heavy rainfall, water passing through the wetlands must necessarily slow down, thus controlling the current and reducing the risk of flooding. This hindrance to water velocity occurs during periods of normal as well as high flow and results in the deposition of much of the suspended silts, organic materials and chemical pollutants. This nutrient collection in turn generally results in a condition highly conducive to an abundance of wildlife.

The fact that water is constantly moving through the wetlands and depositing particulates which support plant and animal life makes them ideal places for the removal of impurities such a septic leakage and agricultural runoffs. Marshes can be overloaded and the water deoxygenated however, if the input of organic wastes is greater than the areas' ability to handle them. A similar crippling of marsh life can occur if toxic chemicals are allowed to accumulate and poison the organisms present.

The additional importance of the river's wetlands to hunting, recreational and commercial fishing, education, and open space are not to be overlooked.

III Protection of Fish and Wildlife Resources

The quality of Hudson River wildlife is being rediscovered as the results of pollution control measures are being seen. Duck hunting has grown to be a popular sport in the coastal areas as has muskrat trapping. The river's link to the ocean provides a variety of fish for recreational fishing, with commercial fishing on the increase. The floristic resources of the area are also of importance. The coastline in the towns of Clermont, Germantown, and Livingston are notable for the presence of some of the oldest privately protected woodlands in the county.

Of particular importance is the existence of several animals listed as rare or endangered in New York State. Included in this category and found in the Coastal Zone are

shortnose and atlantic sturgeon, american peregrine falcon, and american osprey. Of the State Conservation list for plants, sixteen species have been identified as living along the river. These species are further identified in the Appendix.

While not of a direct economic importance to Columbia County, the many fish who depend on the river's flats and marshes for spawning support a large sport fishing industry and associated vacation oriented activities along the New Jersey and New England coasts. Damage to the aquatic resources of our area results in indirect economic damages in these states.

By achieving the previous goals of water quality improvement and wetlands preservation, along with prudent land use, wildlife can be protected.

IV Competition Among Land Uses

The uses of land and water in the coastal zone range from industrial to picnicking with each occurring in specific areas along the coastline. It can be expected that expansion of these activities will continue, with additional land uses being introduced. Determining the best use for each area assumes the proposition that any place is the sum of its historical, physical, and biological processes, that these processes constitute social values, that each has an intrinsic suitability for certain land uses, and that certain areas lend themselves to multiple land uses.

It is important to recognize the areas of the coastal zone which cannot support any development and those which will present opportunities to only specified uses, as opposed to areas where limitations to diversified activities are not quite as severe.

Expansion of industrial, residential, commercial, recreational, agricultural, development transportation and navigation improvements and mineral extraction are not only inevitable, but beneficial to the area when conducted in a manner compat-

ible with the natural and cultural values involved.

A major objective of the coastal zone study should be to investigate the land use problems which have arisen,and identify areas where the various activities should and should not occur and to control this through zoning and other land use controls.

V Public Access

Another major area of consideration for the coastal study is the adequacy of public access to the river shore. Historically, the Columbia coastline was once a busy area. Docking facilities at Cheviot, Germantown, Greendale, Columbiaville, Newton Hook, and Stuyvesant Landing,among others, saw the shipping of a variety of products from the county. As other transportation routes were developed and businesses closed, the need for river access became restricted to recreational activities, and one by one the number of access points were decreased until all that remains are the few scattered and generally poorly maintained areas existing today.

The islands located in the river provide an excellent source of sites for undeveloped recreation. Deposition of materials dredged from channel clearing operations could provide new beach areas as well as protect the area from random dumping of materials. The opening of these areas to Columbia County residents is again dependent upon shoreline access points. The promotion of public access to the River should therefore be a major goal of the study.

VI Erosion

In addition to the water quality problems of erosion discussed earlier, the land loss and resulting property damage from erosion is an area of concern in the county's coastal zone.

The predominantly steep slopes of the Hudson River valley have restricted much of the land clearing and development to the more level, elevated areas. Loss of soil stability from vegetation removal and heavy use has therefore not been a widespread problem. These steep slopes have also generally confined any flooding to the immediate vicinity of the water course with property damage kept at a minimum.

The steepness of these banks also means there is a more direct target for any wave action. Natural waves are not considered to be a problem, but those caused by river traffic are and have occasionally resulted in damage to shoreline property. The underwater turbulences caused by some of the larger ships regularly churn up the river bottom with surface wave action extending damage to the shoreline. As all ships contribute to the erosion caused by this activity, it is impossible to pinpoint one offender and quickly alleviate the problem. However, a method of solution must be found, either by reducing the cause or increasing the land's resistance.

In this respect, the county is fortunate in having the railroad running along its shore. The rock bed which has been constructed has proved to be an effective bulwark against soil loss.

Federal regulations set no speed limit on river traffic, but do require each vessel to be responsible for any damages resulting from its wake. While this seems to be a logical regulation, enforcement is usually difficult, especially when such damage is the cumulative product of numerous ships.

Control of riverbank activities should also be considered in order to protect the fine vegetative, wildlife, and scenic resources that exist in the coastal zone as well as maintaining the soil's stability. While this has not been a great problem in the past, efforts should be made to see that it does not occur.

VII Historic and Cultural Preservation

As settlement in Columbia County first occurred along the river, it is there that many remnants of the area's beginnings are found. The last great battle between the Iroquois and Mohican indians occurred on Rogers Island in Greenport. The county's oldest house is located in Stockport. Clermont is the site of Chancellor Livingston's mansion. Hudson boasts many architectural styles as well as one of the river's remaining lighthouses. The Dutch influence is evident in the architecture of many parts of the coastline, while German construction is evident in the Germantown area.

The importance of these sites lies not only in their historical significance to the river valley, but in their aesthetic and economic value as well. The many fine lines prevalent in these buildings and grounds demonstrate a quality unique to these past eras. Such restorations can be an economic boon to neighboring communities as tourist related activities are supported.

Restoration or at least recognition of these areas will assist in refocussing attention on the coastline's cultural resources and in turn create an interest in the other resources of the area as well. This promotion should therefore be considered as another prime objective of the coastal study.

VIII Intergovernmental Cooperation

Of major importance to the attainment of all goals and eventual implementation of the program is the cooperation between the various governmental agencies associated with the management program.

Input from the various town and city agencies involved is vital as it is these bodies who know the areas best and will be responsible for implementing many of

the program's proposals. Local reactions to the various problems discussed and solutions proposed will determine to a large degree the strong points and weaknesses of the program and add greatly to the project's success.

The county planning department is responsible for much of the program organization and development, making sure that it meets the needs and objectives of the municipalities involved as well as complementing general regional state plans and policies.

State input into the program is as important as the local input, although of a different nature. The technical advice and efficiency offered by state services provides the coastal towns with a valuable tool in studying their shorelines along with serving as a coordinating agent for the county and regional units throughout the length of the state's coastal zone.

As the Hudson River is a federal waterway, coordination between the local plan development and planned federal projects is of importance. A local plan to designate a shore area as a wildlife preserve and a federal project to develop the same area for docking facilities are not compatible programs, but the conflict can be avoided through intergovernmental coordination.

MAPPING

Maps of the Columbia County coastal zone showing boundaries and resources have been prepared by the Columbia County Planning Department using N.Y.S. Department of Transportation 7½ minute planimetric quadrangles as base maps. The coastline was divided into four sections for mapping purposes with the city of Hudson being covered by a fifth series at a scale of 1" = 600'.

1. Base Map

   N.Y.S. D.O.T. planimetric maps were used as base maps showing road and highway networks including route identification, railroads, hydrography, buildings, and civil boundaries. The preliminary coastal study area boundaries were included on this map using a solid black line for the primary study areas and a broken bold black line for the secondary areas. Similar deliniations were made on the 1" = 600' base map for the city of Hudson.

2. Zoning

   For this overlay, existing zoning districts were delineated for all towns which have enforceable codes. In other cases, proposed zoning or land use plans were mapped to give an idea of what could be expected when zoning plans are drawn up.

3. Water Resources

   Because of the major role the streams and drainage areas of the coastal zone play in determining the quality of the Hudson River, these resources were included in the mapping along with their quality classifications given by the State Department of Environmental Conservation. Also of importance are the tidal flats and wetlands associated with the river and the flood hazard zones on the shoreline identified from U.S. Department of Housing and Urban Development, Federal Insurance Administration's flood hazard maps.

4. Historic and Recreation Sites

For this overlay, existing parks and other publicly protected areas were identified along with protected and unprotected historical sites. Points offering direct vehicle access to the river were also included.

5. Slopes

As the steeper slopes have an influence on the type and degree of development that areas can support, these were mapped in three categories: slopes of 0-10%, 10-25%, and over 25%. While it is possible to develop on any type of land, as the slope increases the potential for erosion problems also increases. Therefore these three classifications indicate areas with little, moderate, and severe restrictions to development.

6. Developmental Potential

By combining information recorded on preceeding maps as well as additional information, maps were drawn which identify areas where natural limitations for development are least severe. A more complete discussion of the mapping procedure is included in the section entitled "Potential Development Areas".

Identification of prime aquifers, aquifer recharge areas, and special ecologically unique areas are dependent upon information presently unavailable from outside sources. This material will be included at a later date.

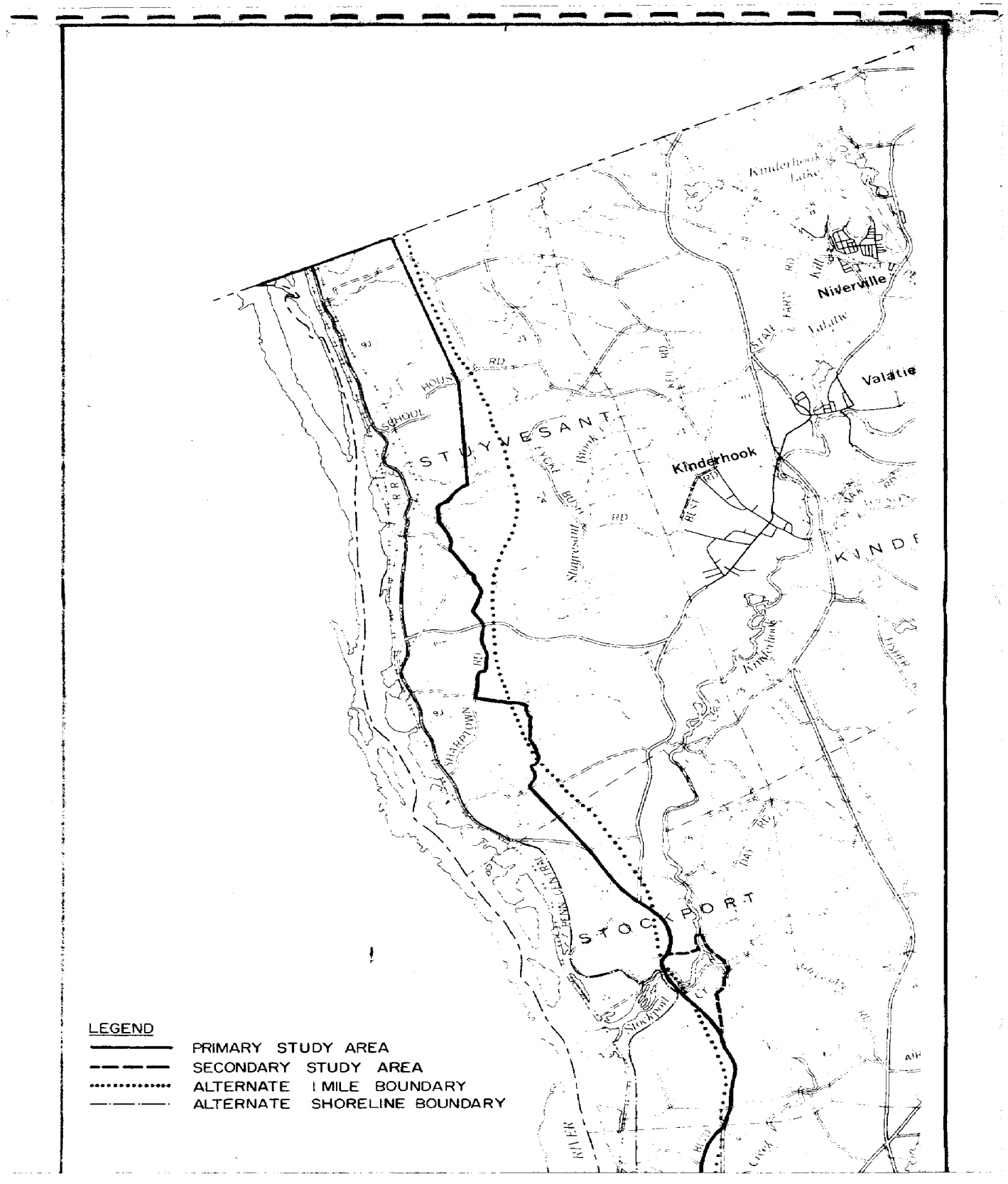
All maps are available for inspection at the Columbia County Planning Department.

ZONE BOUNDARIES

Based upon the requirements for coastal zone boundaries established under the federal Coastal Zone Management Act and adopted for New York State by the Division of State Planning, a coastal zone study area for Columbia County has been delineated. It is important to note that the boundaries currently established are what might be considered preliminary as they constitute a study area only at this time. As the program progresses, and the problem areas and resources of the shoreline region are identified, it can be expected that these boundaries will be altered before their final adoption as a zone for management program purposes.

In delineating the boundaries for the study area there were several alternatives which could have been used. Natural systems, jurisdictional units, and socio-economic factors all require consideration when determining the limitations of the study. To mark an area to include all of these factors adequately is a difficult job and numerous approaches have been made by projects in other states and municipalities. Changes in land use and vegetation have been used as boundaries as have the limits of drainage basins, 100 year flood plains, tidal flows, and municipal jurisdictions. Arbitrary distances from the shoreline have been used, as is the case with the one mile limit of the Hudson River Valley Commission. All of these methods have their benefits as well as limitations.

For this present study it was decided to use a boundary for enough inland to include factors indirectly influencing the river as well as those of the shoreline. As the intention of the initial coastal zone area was to provide a study zone rather than an area which would facilitate management, the boundaries needed to be relatively broad including as much of the river area as possible. After the study was made the boundaries could be adjusted to include only those areas with the strongest relationship to the river and make the implementation of a management program a little easier.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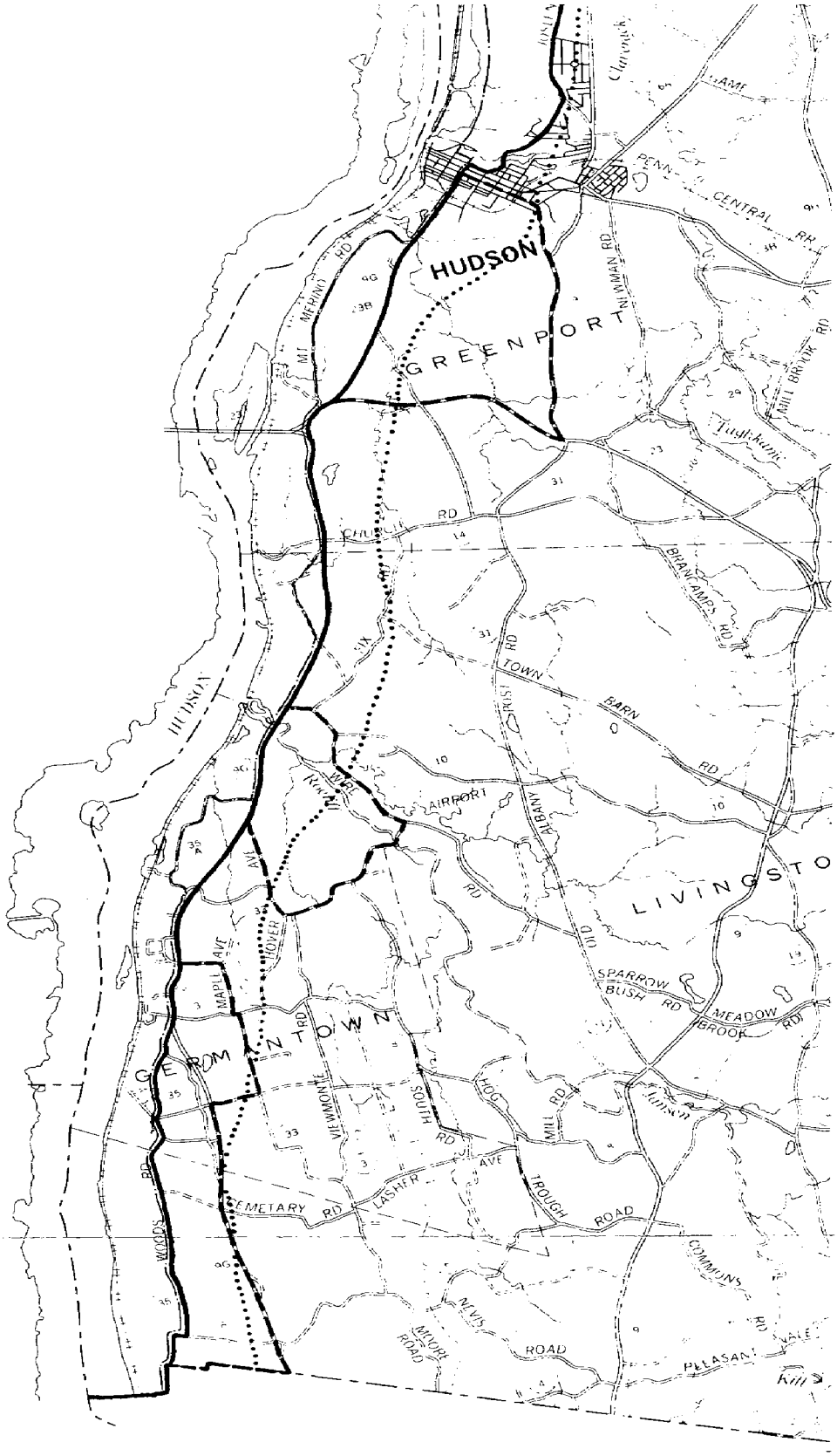
Valatie
Kinderhook
STUYVESANT
STOCKPORT
LEGEND
PRIMARY STUDY AREA
SECONDARY STUDY AREA
ALTERNATE 1 MILE BOUNDARY
ALTERNATE SHORELINE BOUNDARY



COLUMBIA COUNTY COASTAL ZONE MANAGEMENT PROGRAM
BOUNDARIES

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DATE PREPARED: JANUARY 1976

SCALE: 1" = 1 MILE

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There were some areas further back from the river that did not appear to influence coastal quality greatly, but it was felt that some attention should be given to these areas to determine if there were any indirect factors involved. It was also decided that to make field identification of the study area an easier job, some type of existing and readily identifiable boundary had to be used.

To satisfy all of these boundary demands and include the critical areas of the coastal zone initially identified, a boundary was laid out which followed highways power transmission lines and other easily recognizable features which included these areas of concern. In addition to this primary area, secondary z ones were delineated which encompass lands having an impact of lesser magnitude on the shore areas, but still are considered to be of major importance to the coastal zone program. Due to the jurisdictional limitations of the Planning Department, northern, southern, and western boundaries were determined by the boundary of Columbia County. At these points of abuttment with neighboring coastal zone program areas, efforts were made to coordinate the size of the study areas in the interest of insuring a continuity among the various programs of this region.

NORTHERN COLUMBIA COUNTY

The land of the coastal area in the northern part of the county, including the towns of Stuyvesant, Stockport, and Greenport, is generally flat and elevated above the river surface by 100-150 feet. Steep banks at the shoreline create this rise and leave only narrow bands of land in the river's flood plain. The high land is marked by deep, steep walled ravines which drain the area and enable river intrusions into the land, the most notable in this area being the Stockport Creek where tides rise and fall nearly one mile inland. Because of this topography it is believed that most of the land activities which influence iver quality are located a short distance from the shoreline. A broader study area has been included however to ensure the project's comprehensiveness.

Stuyvesant

A Technical Memorandum from the Capital District Regional Planning Commission describes the southern boundary of the Rensselaer County coastal zone as following the Niagara Mohawk transmission line to the Columbia County border. This line is approximately one mile from the river at this point and coincides with the beginning of the Columbia County coastal zone boundary. The boundary can be described as follows:

South along the power line to its intersection with Schoolhouse Road. From this point a straight line to the entrance of the former Peter Hoose estate on Hollow Road located approximately .9 miles from its intersection with Gibbons Road. From this point along Hollow Road to Gibbons Road. South on Gibbons Road and across state route 398 to continue south on Sharptown Road to its intersection with Allendale Road.

East on Allendale Road to the crossing of Stuyvesant Brook sometimes referred to as Sucker Brook. Southwest along this brook to the crossing of county route 46. From this point, a straight line southeast to the intersection of state route 9J and Day Road in Stockport.

Stockport

From the intersection of Day Road and Route 9J, south on 9J to its intersection with U.S. 9. South along route 9 to its intersection with Joslen Boulevard in Greenport.

A secondary zone is identified in Stockport to include the junction of Kinderhook and Claverack Creeks. This area includes most of the hamlets of Columbiaville and Stockport in order to study their relationships with the River. The boundary is described as follows:

From the intersection of route 9 and Footbridge Road in Columbiaville, east along

Footbridge Road to Stockport Creek. From this point, upstream along the Kinderhook Creek to a point on the shore opposite the intersection of Van Buren Hill Road and county route 25. South along route 25 to its intersection with U.S. 9 where it rejoins the primary boundary.

SOUTHERN COLUMBIA COUNTY

The city of Hudson is the only urban area of the coastal zone and lies at an elevation of over 100 feet above the river, although some commercial activity does extend down to the shoreline. The lower part of the city was included in so far that it had a direct bearing on the river. In one case, an oil spill on Hudson streets over one mile inland found its way to the River demonstrating the potential influence interior protions of the city can have, but this influence is believed to be of an occasional nature so that only the lower portions of the city are included in the zone.

The South and North Bays of Hudson are the largest tidal marshes in the county and have been included in the primary zone.

The southern portions of the coastal area are topographically similar to that of the northern towns with steep banks rising up to a plain area. The same logic as before was used to establish boundaries with secondary zones created to include those areas believed to have a lesser impact on the river. As at Stockport Creek, tidal water extends up the mouth of the Roeliff Jansen Kill to a distance of nearly 3/4 mile.

Greenport/Hudson/Livingston

In this area the boundary is described as follows:

South along Joslen Boulevard from its junction with U.S. 9 at the Stockport town line to its intersection with Harry Howard Avenue in the city of Hudson. South on Harry Howard Avenue to Short Street; off Short Street on Carroll Street to

State Street; West on State Street to Third Street and south on Third Street until it becomes route 9G-23B in Greenport. South on this route, past the approach to the Rip Van Winkle Bridge where the road becomes 9G only, and continued south through Livingston and Germantown to the intersection of 9G and Woods Road (County route 35) in Germantown.

A secondary zone is created in Greenport/Hudson beginning at the intersection of Union Street and Third Street. East along Union Street and then South on U.S. 9 (Worth Avenue) at their intersection. At the union of Route 9 and state route 23, west on 23 to the primary boundary at the union of 23 and 9G.

Germantown/Clermont

After following route 9G, the primary boundary continues along Woods Road through Clermont to its exit from the county at Clermont State Park.

For study purposes,a secondary zone has been created to include the tidal area and undeveloped lands at the mouth of the Roeliff Jansen Kill and is described as follows: At its intersection with Route 9G, east on county route 48 to Linlithgo. Along Wire Road to its intersection with Dales Bridge Road. Across the Kill on Dales Bridge Road to its termination at Hover Avenue, and north on Hover Avenue to rejoin the primary boundary at Route 9G.

Another secondary zone has been created in Germantown/Clermont beginning at the intersection of Maple Avenue and Route 9G in Germantown. East and south on Maple Avenue to county route 8. East on route 8 to the intersection of county route 33. South on 33 and west on Round Top Road to route 9G. South on 9G to the Dutchess County line and west on the county line to rejoin the primary boundary.

The boundary established for Dutchess County by the N.Y.S. Department of Environmental

Conservationis located one mile inland from the river at the Columbia-Dutchess line. The secondary boundary for Columbia County is approximately 1.4 miles inland at this point roughly coinciding with Dutchess County. All lands within the boundaries established are within New York State jurisdiction with the exception of minor points such as postal facilities which are federally controlled.

COASTAL ZONE ECOLOGY

The Columbia County portion of the Hudson River can be considered a tidal estuary with its ocean end at New York City and termination at the Federal Dam and Lock at Troy. In the Columbia portion, the estuary varies in width from a maximum of 1.25 miles,opposite North Germantown,to a minimum of less than 1000 feet at several spots off of Stuyvesant. The water is raised and lowered twice daily by tidal action, the variation in level being up to six feet depending on the strength of the tide and shore conditions. Except in the main shipping channel and occasional side channels, the water is relatively shallow, seldom reaching depths over 15-20 feet. Numerous islands and headlands have created many shallow bays and backwaters along the course, with low tide exposing hundreds of acres of mud flats.

The water is fresh in this portion of the estuary, the last measurable quantities of salt rarely being found above Poughkeepsie. This condition provides an environment important to the life cycles of such commercially important anadromous fish as shad (Alosa sapidissima) and striped bass (Roccus saxatilis). The natural shallows and those created by railroad isolation of bays are rich nutrient sinks upon which the valuable natural fisheries depend. Sedimentation and land building is relatively slow in the river under natural conditions due to tidal wash, but in areas where tidal flow is restricted, as in bays isolated by railroad construction, eutrophication is proceeding at a much greater rate. Deposition of spoils from channel dredging operations have also created numerous sand bars and islands where stabilizing vegetation has found it difficult to become established.

The marshlands and tidal flats of the river are one of the area's most important resources, but are also one of the most abused and neglected areas of the coastal zone. By definition, a wetland is an intermediate area between open water and dry land. This characteristic makes it a unique and important type of area, but also has resulted in its mistreatment. Historically, it has generally been found to be much easier to plan for the use of open water or solid land areas, and so the intermediate wetlands have often been pushed into one category or the other by dredging or filling.

While some wetlands have been lost through these activities, others have been created, although usually unplanned. Railroad construction in the 19th century dammed off many small bays along the coastline. With free flow access to the River restricted, these areas collected most of the soil and vegetative particles that would previously have been washed away, and gradually developed into the present wetlands. Channel dredging and consequent deposition of dredged materials, begun in 1929 and continuing at intervals since then, has created a number of sand bars and submerged flats. Nutrient deposition in the sheltered areas around these bars have resulted in the creation of more wetlands.

The beneficial functions of the River's wetlands are numerous. In periods of heavy rainfall, water passing through the wetlands must necessarily slow down, thus controlling the current and reducing the risk of flooding. This hindrance to water velocity occurs during periods of normal as well as high flow and results in the deposition of much of the suspended silts, organic materials and chemical pollutants. This nutrient collection in turn generally results in a condition highly conducive to an abundance of wildlife.

The fact that water is constantly moving through the wetlands and depositing particulates which support plant and animal life makes them ideal places for the removal of

impurities such as septic leakage and agricultural runoffs. Marshes can be overloaded and the water deoxygenated however, if the input of organic wastes is greater than the areas' ability to handle them. A similar crippling of marsh life can occur if toxic chemicals are allowed to accumulate and poison the organisms present.

The transition zones between open water and land areas are often occupied by wetlands supporting valuable food plants for various valuable furbearers. However, marsh plants such as cattail (Typha latifolia), bulrush (Scirpus sp.), and burreed (Sparganium sp.) upon which these animals depend,are rapidly being succeeded in some areas by a plant of European origin, purple loosestrife (Lythrum salicaria), which is a much poorer food source. Decreases in muskrat population noted over the years may be due in part to food limitations caused by this invasion.

NATURAL AREAS OF CONCERN

Generally speaking all wetlands, tidal marshes and flats are important natural features. The recently passed state Freshwater Wetlands Act requires a permit review by the town, county, or state before most alterations can be made to any wetlands. In the case of tidal marshes and flats, additional permit review is required at the federal level. Some of the wetlands of Columbia County do stand out however, as requiring particular concern because of their exceptional value or past mistreatment.

The mouth of Sucker Brook in Stuyvesant was once the site of a properous clay brick manufacturing plant and is presently covered with extensive wetlands. While there is no activity at this site today, it has been zoned for industrial use by the town of Stuyvesant. Great care should be exercised should any development be located there as this site is one of great potential conflict between natural forces and man induced disturbances.

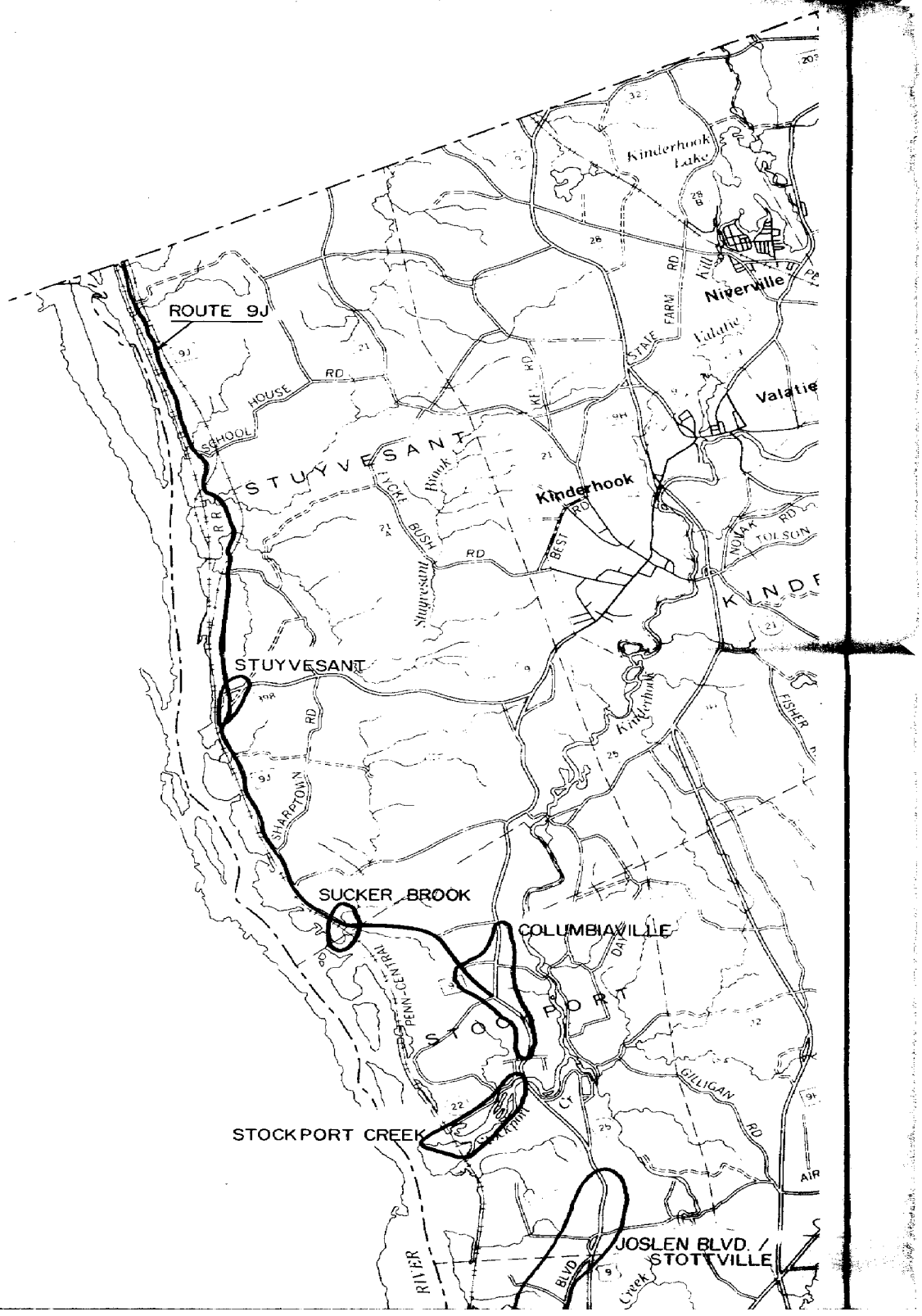
Beginning at the mouth of Stockport Creek and extending south for over a mile is a wetland-tidal flat area known for its abundance of wildlife. The area is relatively undisturbed with hunting camps scattered throughout, and evidence of dredging spoil deposition and railroad construction, none of which seems to have greatly disturbed the natural system. No proposals to modify this area have been identified with the possible exception of additional spoil deposition as a result of future dredging operations.

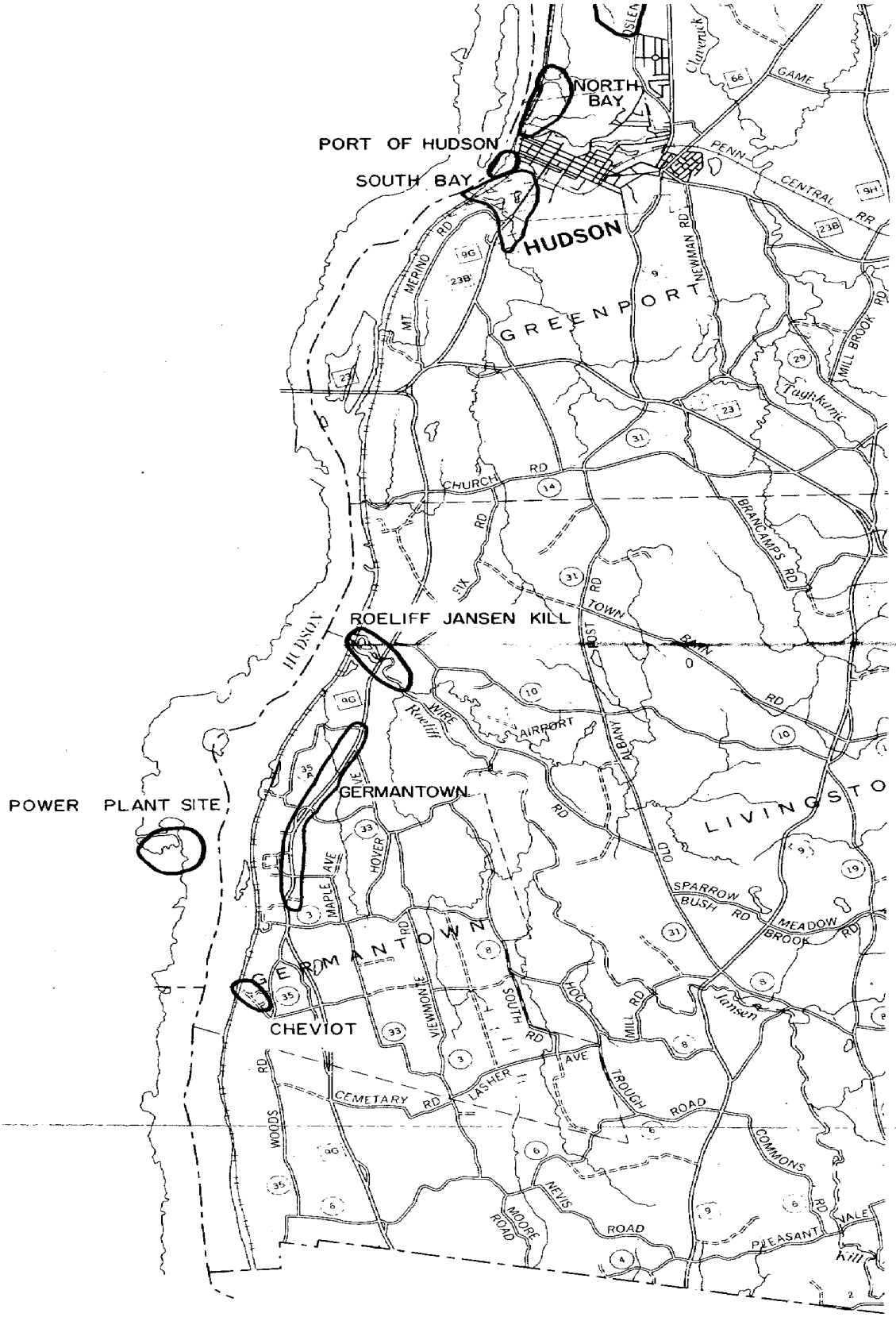
South Bay

The marshlands located in the southern part of the city of Hudson only superficially resembles the South Bay that was so important to Hudson in the past. As late as the 1850's the South Bay was open water with vessels docking on its shores to service the tanneries, lumber yards, and ship building enterprises located there. The cluster of houses known as Simpsonville still stands, although in a much deteriorated condition, as a reminder of the activity that the Bay once generated. The collection of boats in the harbor was so thick in the Bay's hey-day that it led one observer to comment that a person could walk from Hudson to Mount Merino across the Bay without getting his feet wet.

Railroad construction in the 1850's dammed off all but a small section of the Bay's link with the River. As a result, the sediments which ordinarily would have washed away collected behind the railroad grade and accelerated the Bay's eutrophication into the marshlands we see today. Active filling of the Bay by the city has also added to the harbor's destruction. As early as the mid 1800's new roads were planned for the water areas in expectation of their filling.

For a time the Bay was the site of the city landfill and is still home to activities associated with portland cement and highway salt storage. Residential areas at bay level are not serviced by community sewage systems so that these wastes, as well as


ROUTE 9J
Kinderhook Lake
Niverville
STATE FARM RD
Valatie
SCHOOL HOUSE RD
STUYVESANT
Kinderhook
BUSH RD
BEST RD
NOVAK RD
TOLSON
STUYVESANT
SHARPTOWN RD
SUCKER BROOK
COLUMBIAVILLE
PENN-CENTRAL
STOCKPORT
GILLIGAN RD
STOCKPORT CREEK
JOSLEN BLVD. / STOTTVILLE
RIVER



COLUMBIA COUNTY COASTAL ZONE MANAGEMENT PROGRAM

AREAS OF CONCERN

THE PREPARATION OF THIS MAP BY THE COLUMBIA COUNTY PLANNING DEPARTMENT, WAS FINANCIALLY-AIDED THROUGH FEDERAL GRANT #04-5-158-50002 FROM THE OFFICE OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, UNDER THE COASTAL ZONE MANAGEMENT ACT OF 1972. THIS MAP WAS PREPARED UNDER THE COASTAL ZONE MANAGEMENT ACT OF 1972 FOR THE DIVISION OF STATE PLANNING, DEPARTMENT OF STATE.

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much of the city's storm runoff, find their way into the Bay area.

The best solution to this situation can not be identified at this time. The Bay, with an area exceeding 100 acres, is the largest tidal wetland in the county and is still an important link in the river's fishing production with the potential of also being an excellent outdoor education area for nearby schools. The natural limitations of the land, such as periodic flooding, are also major factors in determining just how much development the area can support. On the other hand, the city is continuing its search for additional areas to develop and reinforce its economy. The existing industrial activity there and convenience of rail service make the South Bay a possible location for development.

It is clear that a decision as to the Bay's future can not be made at this time, but should be the object of an intensive examination.

North Bay

While the South Bay limits the city of Hudson on the south, the North Bay limits city expansion to the north. While conditions here are not in the abused state of the South Bay, there has been a substantial amount of filling in the past. The city landfill is located here, and, until recently, garbage was being pushed further and further across the Bay. While dumping still continues, its spread has been checked. As in the South Bay, railroad construction has almost entirely cut off the North Bay's link with the River and its exists in a greatly eutrophied condition.

Roeliff Jansen Kill

The mouth of the Roe Jan Kill, for a distance upstream about five miles, is a relatively undeveloped area for this part of the county. Although there is a boat club and some residential structures at the mouth, east of the 9G bridge the Kill is relatively unspoiled with woodlands and fields along its banks. This stretch

definitely has scenic qualities, and because of this may be of interest to developers. Perhaps the best use for the creek would be to maintain it as it is and make more use of its recreational potentials. There has been some local interest in including the Kill in the State Wild, Scenic, and Recreational Rivers Program. Briefly stated, this program establishes a system for control of land use in areas immediately adjacent to rivers included in the program. The degree of control demonstrated is dependent upon the classification that the river falls into. A Wild River requires that the area be inaccessible except by water, foot, or horse trail A Scenic River may have limited road access, and, if developed, is restricted largely to agriculture, forest, and minor human activities. A Recreational River may be readily accessible by road or railroad and may have been dammed. There are no length requirements,except for a Wild River, which must be a minimum of five miles. The County Planning Department, assisted by the County Environmental Management Council, has been designated by the State Department of Environmental Conservation as the coordinating agency for implementation of this program. Preliminary observations indicate that this portion of the Kill may be eligible for inclusion as a Recreational or Scenic River, but a more in depth study is needed to accurately determine its potential and the resultant effects on adjacent land use.

EROSION

In addition to the water quality problems of erosion discussed earlier, the land loss and resulting property damage from erosion is an area of concern in the county's coastal zone.

The predominantly steep slopes of the Hudson River Valley have restricted much of the land clearing and development to the more level, elevated areas. Loss of soil stability from vegetation removal and heavy use has therefore not been a widespread problem. These steep slopes have also generally confined any flooding to the immediate vicinity of the water course with property damage kept at a minimum.

While the river is not allowed to freeze solidly in the winter, due to river traffic, ice does reach from shore to shore and ice flows are a common occurance. This creates a grinding action on the banks and whatever structures are present within this ice zone.

The steepness of these banks also means there is a more direct target for any wave action. Natural waves are not considered to be a problem, but those caused by river traffic are and have occasionally resulted in damage to shoreline property. The underwater turbulences caused by some of the larger ships regularly churn up the river bottom with surface wave action extending damage to the shoreline. As all ships contribute to the erosion caused by this activity, it is impossible to pinpoint one offender and quickly alleviate the problem. However, a method of solution must be found, either by reducing the cause or increasing the land's resistance.

In this respect, the county is fortunate in having the railroad running along its shore. The rock bed which has been constructed has proved to be an effective bulwark against soil loss.

Federal regulations set no speed limit on river traffic, but do require each vessel to be responsible for any damages resulting from its wake. While this seems to be a logical regulation, enforcement is usually difficult, especially when such damage is the cumulative product of numerous ships.

Control of riverbank activities should also be considered in order to protect the fine vegetative, wildlife, and scenic resources that exist in the coastal zone as well as maintaining the soil's stability. While this has not been a great problem in the past, efforts should be made to see that it does not occur.

MINERAL RESOURCES

The commercial value of minerals in the Columbia coastal zone is presently limited to the extraction of limestone in an area southeast of the city of Hudson. These limestone deposits support the only heavy industry in the coastal areas: portland cement production and associated manufacture of construction materials. The extent of limestone reserves is not generally known. Continued mining of this resource is more likely to depend on market demands rather than availability of materials.

Except in small isolated instances, gravel and sand extraction has not seen any commercial realization in the shoreline areas. Viable deposits of these minerals are in limited numbers, with a general soil survey done in 1929 indicating that the higher grade materials are restricted to areas in the town of Stuyvesant. As home construction is expected to increase in this area of the county, the possibility remains that these resources may be of future value.

Dredge activities in the river by the Army Corps of Engineers have left substantial amounts of sand concentrations on many of the islands and peninsulas along the coastline. While of some value to the mining industry, the locations of these areas do not present economically sound opportunities at this time.

Due to the limited number of extractive operations in the coastal zone, the resolution of problems created by them is not of the highest priority except in the Hudson area. Dust created by cement operations has had a detrimental effect on many of the residents of the Hudson-Greenport area. Increased care in material handling has decreased this problem, although not to levels generally acceptable to area residents. Open pit mining of limestone, sand, and gravel has led to erosion problems in some instances and visual degradation in most cases. Recent state legislation calls for the reclamation of mined lands after operations have ceased, and should be a step

toward the sound management of these operations. Additional environmental damages are possible by creating siltation problems in streams adjacent to gravel washing operations. Removal of river deposits may cause some additional detrimental effects unique to this type of operation through the disturbance of the natural character of this portion of the River. Activities of this nature should be carefully managed.

RECREATION

Hunting

The coastal zone of Columbia County offers a good variety of habitats in which sportsmen may hunt. The marshes and bays of the river area provide an attractive rest area for migrating ducks and geese in the fall and spring.

On the islands and shoreline areas are found rabbits, deer, muskrats, raccoons, squirrels, foxes, pheasants, and grouse which provide a diverse range of game for the hunter.

Availability of hunting areas is generally through arrangements with individual land owners. The only public lands in the coastal zone available for hunting are the game management area on Rogers Island and at Clermont State Park, to a limited extent. Access to the River for boat launching or movement of floating duck blinds is dependent upon adequate launch ramps.

Fishing

The recreational fishing potential of the riverwas being realized as the number of fishermen increasedas news of the improved water quality spread. The polycholorinated biphenyl (PCB) scare of this year caused a dramatic drop in sport fishing, however. Once the magnitude of this problem is identified, a prediction on continued growth can be made. Commercial fishing is on the rise although food

fish demands have also declined due to the PCB situation. The Columbia coastal zone presently supports three commercial fisherman year round, with about one half dozen seasonal commercial operations.

Vistas

The identification of scenic vistas is somewhat difficult as a subjective evaluation is involved, and what is considered a highly pleasurable view by one person leaves another unmoved. If it may be assumed that an attractive view is one characterized by an absence of man-made structures and presence of impressive natural features, then certain areas of the coastline can be said to excel in scenery. The Catskill Mountains provide a majestic background all along the shoreline with the river area offering diverse and interesting views. Scenic easements have been acquired by the state in Germantown and Stuyvesant to insure that open views of the river from the highway are preserved.

The waterfronts in the area also offer some picturesque scenes, most notably the historic district of Hudson, Hudson City Lighthouse, Clermont estates and Olana Historic Site.

Public Access

Another major area of consideration for the coastal study is the adequacy of public access to the river shore. Historically, the Columbia coastline was once a busy area. Docking facilities at Cheviot, Germantown, Greendale, Columbiaville, Newton Hook, and Stuyvesant Landing, among others, saw the shipping of a variety of products such as naval stores, fruits, grains and furs from the inland areas. As other transportation routes were developed and businesses closed, the need for river access points was decreased until all that remained were the few scattered and generally poorly maintained areas existing today.

Columbia County Highway Access Points[1] to Hudson River

Municipality	Site Name	Highway Access	Riverfront Ownership	Wharf Available	Launch Facilities Available
Clermont	Clermont State Park	foot path	public	yes	no
	Carmelite	private foot path	private	no	no
	Midwood (Washburn)	private road	private	no	no
Germantown	Cheviot	Cheviot Road	public	no	no
	North Germantown Anchorage	Anchorage Road	public	no	no
Hudson	Furgary Boat Club	Dock Street	boat club[3]	yes	yes
	Hudson Power Boat Association	Ferry Street	private boat club[3]	yes	yes
	State Boat Launch	Ferry Street	public	no	yes
	Water Street	Water Street	public	no	no
Livingston	Oak Hill Landing	Private Road	private	no	no
	Roe Jan Boat Club	Linlithgo Station Road	boat club[3]	yes	yes
Stockport	Columbiaville[2]	County Rte. 22	railroad[4]	no	yes
Stuyvesant	Hook Boat Club	private road	boat club	yes	yes
	Newton Hook	Ferry Road	private	no	yes
	Newton Hook	private road	private	yes	yes
	Stuyvesant	public road	railroad[4]	no	no

1. Access point is here defined as any surface crossing of Hudson River Line railroad or direct entry to navigable tidal areas.
2. Also several private residential docks.
3. Boat clubs provide private access which is available to public through membership.
4. Railroad areas are privately owned with public use generally not restricted.

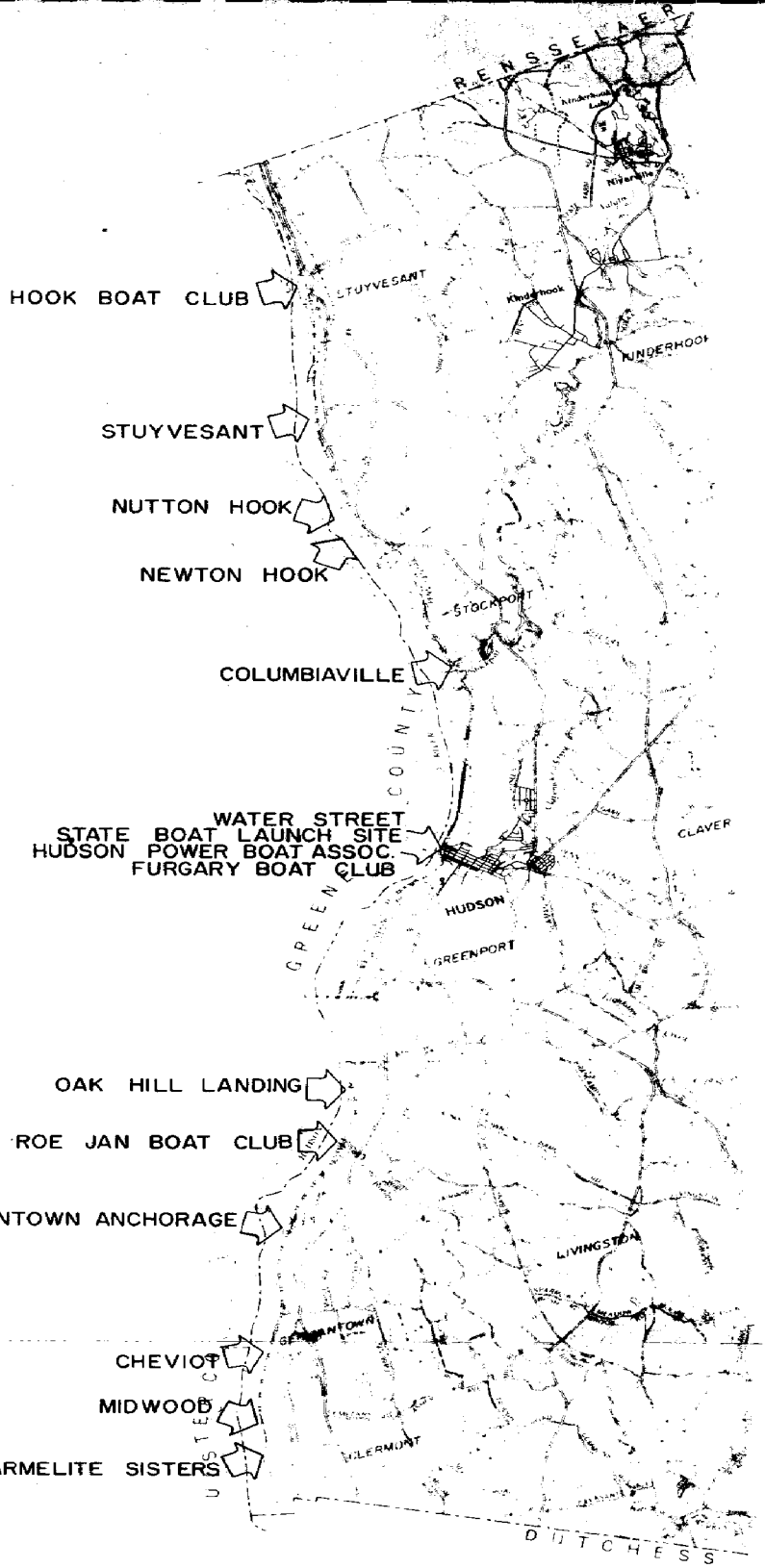
The roads leading to these points were established to serve the shipping docks located at their ends. Because of this, they are generally dead-ends, with little use, and there have been only the most necessary repairs made to them. The railroad has cut off complete road access to the river in many instances while in other cases a crossing has been provided. Only on Ferry Street in the city of Hudson will one find a bridge crossing offering maximum safety to motorists. The river side of the crossings is usually limited to a small parking area and in some cases a dock or launch ramp. Five notable exceptions are:

I Hook Boat Club

While its facilities are open to members only and is accessed by a private road, the lands owned by the Hook Boat Club, south of Poolsburg, provide a beautiful natural area protected from the traffic of the main shipping channel. The approximately 15 acres of land lie on themouth of Schodack Creek facing Hotaling Island and are well secluded from Route 9J and the railroad. The Boat Club is presently an active organization and is responsible for keeping this crossing open. It is in the town and county's interest to insure that this crossing and the valuable shoreland is not lost through future crossing closure.

II Hudson

The Hudson waterfront is the most highly developed river recreational area in the county. Access is provided by a bridge crossing on Ferry St. and a surface crossing on Water Street. The State Office of Parks and Recreation maintains a boat launching ramp here with ample parking space for cars and trailers. The parking area has also been the site of several environmental and crafts fairs



COLUMBIA COUNTY COASTAL ZONE MANAGEMENT PROGRAM

PUBLIC ACCESS POINTS

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in the past. The Hudson Power Boat Association maintains docking facilities in this area for the use of its members and visitors. Sewage pumping facilities for boats are not available here but should be encouraged for use by the club and small craft traffic.

III Newton Hook

The hamlet of Newton Hook is unique in that the community is located on both sides of the railroad. Discontinuation of a ferry to Coxsackie left a point of entry to the river with a rude cement launching ramp present. The waterfront area is privately owned but the owner has a policy of unrestricted pubic use making this point a popular spot for recreationists with some limited camping available. As this area is serviced by a public road more interest should be given to its maintenance.

IV North Germantown Anchorage

With an area of about 6 acres, this area on the shoreline has a great potential for the Town of Germantown and southwestern Columbia County. A year round residence occupies the southern portion of this land while that to the north of Anchorage Road reamins open. A natural beach area is present with enough additional waterfront available to support docking facilities or a small marina. Germantown residents have expressed a sincere interest in this idea and it should be pursued further.

V Stuyvesant Landing

The crossing at Stuyvesant is publicly owned but used primarily by the railroad for its service vehicles. The crossing opens onto a narrow strip of shoreline which extends south a short distance to a wooded peninsula of dredge material. There is

a definite possibility of beach, marina, and picnic ground development in this area. The Stuyvesant Conservation Advisory Council is presently investigating the possibility of town acquisition of the peninsula for recreational usage.

Except for the Ferry St. crossing in Hudson, these recreational area require surface access over the railroad tracks. This is not a safe condition and automobile-train collisions have occurred. An increased hazard will be created when high speed rail service begins on this line. Effort should be begun to preserve these crossings and at the same time remedy this situation.

In addition to maintaining and expanding existing access areas, investigation should be made into the possibility of creating new areas offering a variety of oppurtunities in sections of the coastline where access to the water is presently difficult or not possible.

Islands

The islands in the river have offered recreation opportunities to boaters for many years. Hunting, camping, and picnicking are popular activities on these largely undeveloped areas. Actual ownership of the islands is a debatable point. A number of small summer camps have been established and ownership by "squatters' rights" has been claimed. The state contends that because they are located in navigable waters and are often composed of "raised land" from dredging activiites, the islands belong to New York State. Whatever the outcome, the goals of both types of ownership appear to be the same; use the islands for recreational purposes. Support of this use comes from the fact that nearly all of the acreage that the islands comprise is designated as a flood hazard area in the Federal Flood Insurance Program classification. This restricts any development to that which can accomodate any water inundation without

excessive damage.

Farming is an interesting use of some of the land on Houghtaling Island in Stuyvesant. Rogers Island, located at the Rip Van Winkle Bridge is owned by the state as a wildlive management area with seasonal hunting permitted. The remaining islands are primarily used for hunting and summer camps or are completely undeveloped.

SOCIAL AND CULTURAL AREAS OF CONCERN

Greene County Power Plant

Proposed by the State Power Authority is a 1200 MW nuclear powered plant for electrical generation to be constructed at a riverfront site at Cementon, opposite Germantown, or at a more inland site in the town of Athens across from Hudson. This plant will be cooled by two 450 foot cooling towers which pose a major point of concern to residents in the Columbia coastal zone. The biggest questions to be answered are, the possible impacts on atmospheric conditions on agricultural activities as a result of additional moisture in the air, possible safety hazards to area residents, the impact on shoreline real estate values for lands lying in sight of these massive structures, and possible adjustments that communities may have to make as families associated with plant construction and operation move into the area. While preliminary assessments of the situation indicate that these impacts will not be of a significant nature for Columbia County, independent studies are being made to more accurately determine the social, economic, and environmental stresses that will be placed on the area.

Because plant ownership will be through the Power Authority of the State of New York, taxes will not be paid by the Authority on this facility's value. To offset this, surplus power to a maximum of 100 MW's will be available to public authorities in local communities. This cheap power resource may encourage additional industrial construction in the coastal area.

River Community Restoration

Before the advent of fast, economical land and air transportation systems, most commercial activity in Columbia County depended upon the Hudson River as a route to markets. Rather than transporting goods overland to a central port, numerous docking facilities were erected along the coast with small communities growing up around them. Today, few of these communities have retained any of their former character. Two that have are the hamlets of Cheviot in Germantown and Stuyvesant in Stuyvesant.

Cheviot, orginally named Hunterstown, was founded by Palatine settlers in 1771. Originally intended as a shipping point for naval stores it became more involved with fruit and other agricultural production in later years. With railraod construction a station was established in the East Camp Hotel at Cheviot, but a lack of business forced its closure a number of years ago. Several of the buildings still in use today were erected in the mid-19th century and stand as a reminder of the days when the river played a larger role in the area's economy.

The hamlet of Stuyvesant, formerly called Kinderhook Landing, grew as a result of the need for a river port for agricultural production from the rich lands of Stuyvesant and Kinderhook. In its peak of activity a number of wharves lined the riverfront area, but have since been destroyed. The ice industry andan iron stove factory supported the community for some time, but today it is primarily a residential area. A number of structures dating from the mid 1800's to as far back as the early 1700's are still standing and create a good area for a historic restoration program of a river community.

Both of these restoration proposals should be the subject of further investigation to determine the actual feasibility of such a project.

Historic Structures

In addition to the buildings found in the hamlets of Stuyvesant and Cheviot discussed earlier, a number of houses are located in scattered areas along the coastline. A description of some of the coastal zone's older structures follows:

I Clermont:

1. Clermont, Clermont State Park, home of Robert L. Livingston.
2. Pre-Revolutionary cottage, off Woods Road, 1-story stone, burned by British forces and rebuilt.

II Germantown:

3. Young House, near Cheviot, 2-story clapboard, early 19th century.
4. Adam Clum House, Orchard Road, 1-story clapboard saltbox, early 19th Century.
5. Cheviot, characteristic buildings of 19th Century, farm and river community.
6. First Reformed Church Parsonage, Maple Avenue, 2½-story, 1746.
7. House, early 19th Century, Northern Boulevard.
8. Ten Broeck House, Hover Avenue, Pre-Revolutionary.

9. Old Best Place, 9G, North Germantown, clapboard saltbox, late 18th Century.

III Livingston:

10. Livingston Memorial Chapel, Linlithgo, parts form 1722, rebuilt 1870. Vaults hold first eight generations of Livingston Family.
11. Site of 2nd Livingston Manor House, c. 1800, 9G at Linlithgo. Burned in 1918.
12. Site of 1st Livingston Manor House, c. 1699, Livingston Station Road. Burned in 1800.
13. Cottage, Route 9G, 2-story clapboard, 1780.
14. Oak Hill, Oak Hill Road, 2-story brick mansion, 1763.

IV Greenport: (south)

15. Olana, Route 9G, 35 room Victorian eclectic mansion, completed 1872; Home of artist Frederick Edwin Church.
16. Benedict House, Route 23 and Middle Road, 1½-story clapboard, c. 1800.
17. Jacob Bont Place, Route 9G/23B, 1-story stone, early 18th Century.
18. Mansion, Mt. Merino Road, 2½-story brick, c. 1840.

V Hudson:

19. Hudson City Lighthouse, south of Middle Ground Flats in the Hudson River, brick Victorian with gambrel roof and tower, 1874.
20. Hudson Area Library, State Street, Federal style, c. 1800. Designed by Barnabus Waterman.
21. Promenade Hill, foot of Warren St., park overlooking Hudson River, late 18th Century.
22. Hudson Historic District, Warren and Front Streets, area of excellent 18th and early 19th Century buildings.
23. Fireman's Home, Harry Howard Avenue, late 19th Century, houses Museum of Fire Fighting Equipment.

VI Greenport: (north)

24. Old Turtle House, off Route 9, 2-story brick Federal style with Ionic columns and curved entablature, late 18th Century.

25. Black House, off Joslen Boulevard, 2-story stone, c. 1700.

VII Stockport:

26. Mill House, Van Buren Hill Road, 2-story stone, early 19th Century.

27. Abram Statts Houses, Stockport Station, 1-story stone, 1664. Much altered. Reputed to be oldest house in Columbia County.

28. Empire Brickyard, off Route 9J, ruins of brick fabricating industry.

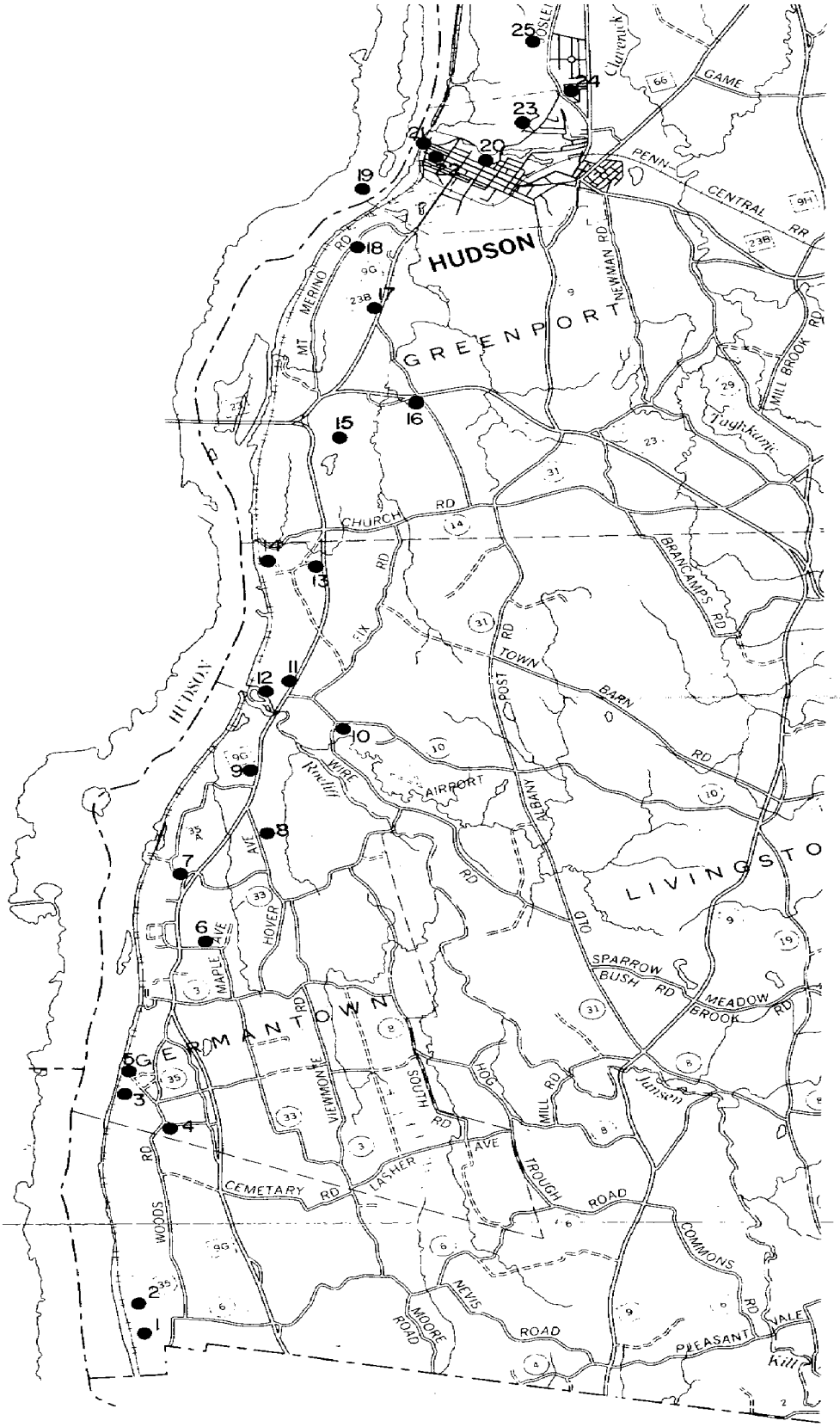
VIII Stuyvesant:

29. Site of Hendrick Hudson landing, off 9J, one of several reputed landfalls in 1609.

30. Stuyvesant Landing, characteristic buildings of 19th Century, farm and river community.

Taken from Historic Resources of the Hudson, Hudson River valley Commission, 1969

RIVER
BLVD
STOCKADE RT
PENN-CENTRAL
SHARPTOWN RD
STUYVESANT
Kinderhook
Valatie
Niverville
Kinderhook Lake
26
27
28
29
30



FOR DESCRIPTION OF SITES SEE HISTORIC SECTION, PAGES 38, 39, & 40

COLUMBIA COUNTY COASTAL ZONE MANAGEMENT PROGRAM
HISTORIC SITES

THE PREPARATION OF THIS MAP BY THE COLUMBIA COUNTY PLANNING DEPARTMENT, WAS FINANCIALLY-AIDED THROUGH FEDERAL GRANT #04-5-158-50002 FROM THE OFFICE OF COASTAL ZONE MANAGEMENT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, UNDER THE COASTAL ZONE MANAGEMENT ACT OF 1972. THIS MAP WAS PREPARED UNDER THE COASTAL ZONE MANAGEMENT ACT OF 1972 FOR THE DIVISION OF STATE PLANNING, DEPARTMENT OF STATE.
DATE PREPARED: JANUARY 1976

SCALE: 1" = 1 MILE

N

Some preservation and restoration of older structures has occurred along the coastline, most notably at Olana Historic Site where a farm of the 19th Century is being reconstructed in addition to the Frederick Church home. Chancellor Livingston's estate at Clermont State Park is also having extensive restoration work done on the mansion, while in the city of Hudson much work has been done in rehabilitating the old lower Warren Street - Front Street area.

These present projects should be encouraged to continue as there is some economic gain to the area through tourist associated activities. Attention should also be given to some of the other historic sites which have not yet been recognized either through public development or historic easement to insure the preservation of these areas.

Scenic Highway Development

While several highways parallel the River coast, they are generally blocked from visual contact with the water because of vegetation, development, or topographical restrictions. In most cases these barriers can not easily be removed to enable visual access to the River, with the possible exception of Route 9J in Stockport and Stuyvesant.

State Route 9J is presently a poorly paved road connecting the city of Rensselaer, across the river from Albany, with Stockport and the Hudson area. Through most of its route in Columbia County, 9J is rarely more than 500 feet from the river and has many potential spots for overlooks and pull off areas. Traffic is unusually light for a state highway with average daily use of 500 and 680 vehicles for two stretches monitored by the State Department of Transportation in 1973. A previous study of scenic sites and corridors in Columbia County done by the Board of Supervisors identified an area on 9J north of Stuyvesant as one of five spots to be considered as scenic highway areas. Further investigation should be made into the

highway's possibilities as part of the second year program.

Port of Hudson

The waterfront of Hudson has been developed as the county's only commercial port. Existing commercial use is limited to cement and oil shipping, but there is water-frontage that appears to be able to support additional shipping use. Based on preliminary investigations,the Hudson area has more advantages for this type of use than any other area of the county. Future study should be made of this potential in the second year program.

AREAS OF POTENTIAL DEVELOPMENT

Maps of the coastal study area were prepared identifying areas where natural features exist that would pose some difficulty for development. It must be understood that almost any natural barrier can be overcome, although the cost of doing this generally restricts development to the most easily workable areas.

Slopes greater than 25% (rising 25 or more feet vertically in a 100 foot horizontal distance) were considered to impose severe restrictions on development while those of 10-25% pose moderate restrictions. Land with a grade of 10% or less is considered to be a minor influence on most development.

Areas included in flood hazard zones for the Federal Flood Insurance Program were mapped as presenting severe restrictions for any kind of development which could not undergo flooding without suffering major damage. Included as presenting moderate restrictions were streams and their banks extending 150 feet back from the water. Development in riparian areas is not only risky due to the instability of many banks, but also many times interferes with water quality due to wastes finding their way to the water or increased erosion rates as protective vegetation is removed.

Woodlands were mapped as presenting moderate restrictions for development. All other factors being equal, developing a woodland does not offer restraints much greater than an area of more open land, and may even be desirable as in a residential development. However, woodlands are often allowed to exist because they are located on land which presents problems for development for other reasons as well. This is particularly true for the coastal zone as most arable land has already been claimed for agriculture or transferred for developmental purposes leaving less desirable tracts as woodland.

Although there is a need to preserve viable agricultural lands, these lands, as a rule, present the least natural developmental restrictions and so are not shown to negatively influence developmental locations in this instance.

Several areas were identified from these maps as being prime development locations.

Joslen Boulevard/Stottville: this area in northern Greenport has seen much development in recent years and can expect to see more in the near future. Although there is no zoning in the town, the nearness of the Rte. 9 shopping strip is expected to provide most of the services for development in the area so that new construction is expected to be primarily residential. Community water is available along Joslen Boulevard although sewage collection is not in many areas. Construction of sewage lines is a pressing need for this portion of the town and should be remedied in the near future. A multi-family townhouse complex consisting of 402 units on 80 acres of land has been proposed for one parcel on the road and is indicative of the kind of pressures this area will be facing.

The Route 9 area of Stottville north of Joslen Boulevard will also experience growth in the next several years. While public water is available to this area, public

sewage collection and treatment is not. The soil of this area is predominantly clay and presents a major restriction to the effective operation of individual septic systems. Sewage disposal is a severe problem for the area today and is compounded with each new development. The Stottville area has a significant growth potential and the community services will have to be provided as it comes.

Columbiaville: The Route 9 area of Stockport, north of the hamlet of Columbiaville, has been identified as having a fairly high development potential, although not as high as the Joslen Boulevard/Stottville area. The availability of community water to this area, in addition to the favorable natural features and nearness to a main transportation route, should serve as an incentive to growth in this area.

Stuyvesant: The land around the Stuyvesant hamlet offers natural features conducive to development. There are no existing community utilities present, but pressures from the Albany area for residential growth should have an influence on accelerating the growth rate of Stuyvesant.

Germantown: In the southern portion of the coastal zone the area beginning at Cheviot and running north to North Germantown is believed to be an area with high growth potential because of its favorable natural features. The land along Route 9G is relatively flat and open. Development at Germantown provides several community amenities although public water and sewer systems are not yet available. These services should be encouraged in the next several years.

LAND AND WATER USE CONFLICTS WITH ENVIRONMENTAL QUALITY

Industrial

Environmental problems arising from industrial activities are presently limited to the extent of these activities. Dust is quite evident at the cement transfer location in Hudson and at adjacent locations.

Salt storage on the South Bay is done with no sincere concern over contamination of the Bay waters. Any new industrial establishment should be located with high consideration given to the environmental impacts of its activities along with social and economic considerations.

Agricultural

While much has been said of the damaging effects of fertilizer and pesticide runoffs, the real effects of these activities in the Columbia coastal area have not been measured. The magnitude of this impact can therefore not be stated with any accuracy. Except in isolated instances where problems occur due to poor farming practices, detrimental effects on water quality due to agricultural activity can not be considered a major area of concern. Irresponsible aerial spraying practices such as unusual drift and tank dumping while in flight are sometimes the cause of significant agricultural related pollution and should be discouraged.

Community Services

I Sewage

Shoreline land use is limited at this time primarily to agricultural, woodland, and residential activities, in addition to the rail transportation corridor and industrial activity at Hudson. Municipal sewage collection and primary treatment is available only in the City of Hudson and northern Greenport. The remainder of the sewage produced in the zone is handled by individual septic systems or private treatment facilities with about 50% of Stottville serviced by collectors with no treatment. Any river pollution from these sources is generally not considered to present a problem except when it occurs in concentrated areas. While Hudson does have a collection system for sewage and storm runoff, the runoff may be diverted directly to the River during periods of high storm flow. This system was demonstrated recently when an oil spill on city streets over one mile inland found its way

through storm sewers into the river causing damage to wildlife despite efforts to contain it at its entry to the river.

Existing Municipal Sewerage Systems
Columbia County Coastal Zone

District	Type of Collection	Location of Outflow	Treatment	Plant Capacity
Greenport #1	Sanitary	Claverack Creek	Primary	.7 MGD
Hudson[1]	Combined	Hudson River	Primary	3.7 MGD
Stottville[2]	Sanitary	Claverack Creek	None	

[1]Activated sludge secondary treatment planned

[2]Plans call for a connection with adjoining proposed Greenport district #2 and treatment plant construction

Type of Collection:

Combined - system carries both storm drainage and sanitary wastes

Sanitary - storm drainage is collected separately from sanitary wastes

Source: Comprehensive Sewerage Study for Columbia County, 1968

Other population centers in the coastal zone will not support a community system at this time, with the exception of Germantown which is planning a collection and treatment system.

II Water Supply

A comprehensive public water supply study for the county was done in 1969 by Malcolm Pirnie Engineers. Public water systems were identified in the coastal towns of Greenport and Stockport and city of Hudson. Data for the accompanying

EXISTING PUBLIC WATER SUPPLY SYSTEMS

COLUMBIA COUNTY COASTAL ZONE

	Total Population 1970	Population served 1967	Daily water demand 1967 (mgd) Avg.	Max.	Maximum safe yield of existing supply (mgd)	Daily Water Usage % Domestic[1]	Major Industrial	Raw Water Supply Source (See Code)	Safe Yield (mgd)	Storage (m.g.) Reservoir	Distribution
Greenport W.D. No. 1	3686	2,720	0.411	0.822	1.16	50	50	W[3] SP	1.16	0	2.44
Hudson	8940	10,730	1.56	2.22	1.37	80	20	S R	1.37	55	4.0
Stockport W.D. No. 1	2324	500	0.048	0.086	0.08	100	--[2]	W	0.08	0	0.04
W.D. No. 2		1360	--[2]	--[2]	0.575	--[2]	--[2]	W	0.575	0	0.02

[1]Domestic water usage includes residential, commercial and unaccounted for water usage.

[2]Information not available.

[3]Additional water supply source developed in 1968.

Source code: R - Reservoir, S - Stream, Sp - Spring, W - Well

SOURCE: Comprehensive Public Water Supply Study for Columbia County, 1969

chart was taken from the Comprehensive Public Water Supply Study. Although done in 1969, this information gives a fairly accurate account of present water services. Municipalities not listed receive water through individual wells or small private systems.

The public water study recommends future service expansion in the town of Greenport to include the Mount Merino and Church's Hill areas with additional construction of a .5 mg storage facility. Additional sources are recommended to supply increasing demands in Hudson and Stockport. New demands are expected to strain the capacity of the existing water source for Stockport and the plan recommends the establishment of a new well source and a .2 mg storage tank.

Expansion of water service areas is not only indicative of newly established residential areas, but also encourages additional concentrated growth. This growth is expected to be highest in the Greenport-Stockport area, particularly along Joslen Boulevard. The Mount Merino area can expect to see development of single family upper income units accelerated should public water be made available.

III Solid Waste

With the exception of the city of Hudson which dumps its solid waste at a landfill on the North Bay, solid waste production in the coastal towns is disposed of at points inland from the coastal zone. A comprehensive solid waste management study has been provided for the county by Leonard S. Wegman Co., Inc., and has recommended the establishment of a county landfill system for disposal of solid wastes.

The residents of Stockport and Stuyvesant are presently hauling their wastes to a landfill serving a total of six towns and three villages. Implementation of a county landfill is not expected to alter existing transporting practices in these two towns

as much as in the southern towns where residents are accustomed to short trips to their town landfills. The many ravines and bays along the river have provided receptacles for illegal dumping on occasion. This practice accounts for only a small percentage of solid waste disposal, but does constitute an eyesore problem and health hazard. The inconvenience of longer hauling distances when the county plan is implemented may result in a temporary reaction of increased illegal dumping, but this is expected to be a short-lived practice.

Existing and Future Total Collected Municipal Solid Wastes by Coastal Zone Municipality

Municipality	Tons/Years 1970	1980	1990
Clermont	614	909	1388
Germantown	977	1359	2108
Greenport	793	1160	1718
Hudson	7864	8169	7679
Livingston	1249	1913	3040
Stockport	1274	1834	2808
Stuyvesant	912	1299	1915
Totals	13,683	16,643	20,656

Source: Columbia County Comprehensive Solid Waste Management Study, 1974.

LAND USE PLANNING

Basic to the concept of any coastal land management is the process of local land use planning; that is, planning for the proper and efficient use of available land. Such planning must study natural land features, community facilities, speculative demands on the land, existing land use, and the local goals of the community before any decision as to future land use can be made. As the proper role and influence of each element is determined, a pattern of desired use for selected areas of the community emerges. This pattern is known as a land use plan. The plan is an attempt by local municipalities to organize and direct future growth to the most appropriate areas.

It is only within the last decade that the municipalities within the Hudson River area have become involved in conspicuous efforts to control and regulate future growth and land use within their jurisdictions. Prior to this time only public health laws concerning sewerage had to be satisfied so that development was at the whim and desire of the individual. Consequently, a rather random pattern of land use occurred, one in which the good of the community played a minimal role. Recently however, local governments have become increasingly aware of the consequences of unregulated growth and have taken action toward its regulation. Each municipality has had a land use plan prepared as the initial step in controlling land development.

Because much of the coastal region is rural and relatively undeveloped, there is a lack of public utilities throughout this region. This void has strongly influenced the prescribed residential densities of the existing land use plans. The only areas in the coastal region that presently have public sewer and water facilities are the city of Hudson and Northern Greenport. Consequently, the restrictions on residential densities outside of these areas have in part been determined by the acceptability of local soils to individual septic systems. Unfortunately, the permeability of most soil types found in the study area is unsatisfactory for septic systems and lot sizes in these areas have been increased accordingly.

Aside from those areas presently served by public sewer and water, lot sizes of less than one acre have been either proposed or established in the vicinity of the following hamlets: Stuyvesant, Linlithgo, and Germantown. This policy encourages the clustering of future growth in these areas and has evolved as a result of a number of local factors. Access to these areas is generally good, topographical restraints are at a minimum and a concentration of structures already exist. With densities attractive to development, it will be feasible to provide public utilities to these areas as growth occurs.

Local land use plans have also attempted to discourage scattered and random residential growth in order to reduce the loss of prime agricultural land. Agriculture is recognized as an important local resource that must be protected from residential encroachment. Encouraging growth near existing residential centers will reduce development pressures and tax assessments on the local farmers. Areas that have been identified as agriculturally viable have been recommended for minimum lot sizes of 1-5 acres and have been restricted to low intensity uses.

In conjunction with local efforts to save viable farm land, a sizable number of acres of the coastal study area have been included in established agricultural districts. Land owners within these districts, actively engaged in farming, have the option of having their land assessed for only agricultural purposes, thereby inducing the farmers to remain in agriculture. In addition, restrictions are imposed on funding involving non-agricultural activities.

Excepting the city of Hudson, the designated commercial areas within the coastal region have been limited to activities designed to serve the surrounding neighborhood or the traveler. These areas are found in the existing hamlets or at the strategic highway crossroads presently incorporating these activities.

Selection of industrial sites has been limited to the town of Stuyvesant, the town of Germantown and the city of Hudson in areas where present commercial-industrial activity exists. Recommendation of additional industrial areas along the coastal region has been curtailed by the dearth of existing industrial activity, inhibiting topography (slopes and wetlands), poor soils and inadequate access to the river. Ironically, the rail tracks which provide excellent opportunities for rail freight service impede direct river access for industries requiring water transportation.

In those areas along the river which exhibit severe topographical restraints, poor access, or unsuitable soils for either agriculture or for on-lot sewerage, conservation districts have been either recommended or established. These areas are only marginally suitable for development, yet they are environmentally necessary as aquifer recharge areas, wildlife refuges and open space. Land of this kind has been recommended for limited use on lot size from 5-10 acres.

Finally, in order to participate in the National Flood Insurance Program, all of the municipalities along the coastal region have been involved in flood plain planning. The town of Livingston is the only municipality yet to be accepted in to the insurance program. All the other areas have adopted federal construction and flood proofing regulations for structures built within identifiable flood hazard areas.

Implementation

Any attempt to regulate growth is effective only because municipalities have been given the means to implement local land use plans. Based on a municipality's "police powers" to protect the health, safety, morals and general welfare of a community, state enabling legislation has granted cities, towns, and villages the authority to adopt zoning, subdivision, junk yard, and dumping controls. In addition, urban renewal powers have been granted to those municipalities containing blighted areas. These controls, when properly used, have proven to be effective in controlling land development. Continued planning demands that they remain an integral part of any future coastal zone management scheme. A short description of these controls follows.

I Zoning

Perhaps the most recognized, effective means of guiding land development within towns and villages is zoning. This control regulates the use of land and the structures on it. It involves dividing the community into districts or zones. i.e. residential, commercial, industrial, etc.. Within each district there are restrictions on use,

lot size, set backs, heights, and density of population.

Zoning seeks to establish orderly growth through proper land use. It attempts to eliminate conflicting land uses that adversely affect surrounding land. It regulates what the individual can do,for the good and protection of the entire community. Some specific goals of zoning may be to lessen traffic congestions, to secure safety from fire, to protect residential sections, to provide adequate light and air, to prevent overcrowding and to conserve natural beauty. In effect, zoning promotes the proper and orderly growth of private land within the community.

II Subdivision Regulations

Although zoning is effective in regulating the location of specific uses within a municipality, it does not adequately resolve the more specific problem of proper site design of individual developments. Therefore the local planning board has been granted the authority to approve subdivided land according to a set of minimum design requirements known as subdivision regulations. (A subdivision of land occurs when a tract is divided into two or more parcels). Subdivision regulations insure proper design and construction of street, drainage, water, and sewer systems and thereby reduce future community maintenance costs for these systems. By regulating sidewalks, street lighting, curbing and recreation areas, they also enhance property values which strengthens the community's tax base.

Additional "clustering" powers which guarantee the protection of open space and environmentally sensitive areas can be granted to the planning board in the subdivision review process. Given this authority, the planning board can permit the developer to group his dwelling units on lots smaller than the minimum size recommended by zoning. Even though lot sizes may be reduced, the average density allowed by zoning cannot increase. The resulting undeveloped land within the subdivision must be left as open space for the residents.

III Urban Renewal

Zoning subdivision controls are primarily designed to regulate new uses, that is, uses that have not yet been established. Consequently, these controls have little effect on structures and uses existing prior to their adoption. Since many urban areas were developed well before the adoption of land use controls, the areas of beginning urban blight continued to decline. The abatement of urban blight necessitated additional land use legislation.

In 1949, the federal and state governments enacted legislation for the redevelopment of slum areas. The legislation provided for the establishment of urban renewal agencies which could exercise the power of eminent domain to remove dilapidated buidlings. Once the land was cleared, replacement housing would be constructed.

Through the years, urban renewal has expanded its scope of involvement. In addition to the replacement of slum dwelling with new low income residential units, renewal is now involved in the rehabilitation of older dwelling units, the construction of moderate income residential units, the rehabilitation of commercial facilities, and the preservation of historic areas.

IV Other Pertinent Land Controls

Ordinances controlling the use of mobile homes have been adopted by those areas lacking zoning. These ordinances describe licensing requirements for both individual mobile homes and mobile home parks. Generally, design standards concerning lot and/or park layout must be met before licensing approval is granted.

Municipalities are also empowered to control junkyards and dumping. Local governments have developed restrictions which forbid unrestricted dumping and which permit refuse disposal only at designated sites. Communities may also restrict the establishment of junkyards and may require existing ones to be properly fenced and

maintained.

Existing Land Use Regulations Within the Coastal Region

All seven municipalities within the designated coastal area are enforcing some form of land use control. Three of these governments have adopted zoning while the other four municipalities are presently preparing zoning regulations. Only one, Clermont, has not adopted subdivision regulations. All the governments control mobile homes, mobile home parks, junkyards, and the dumping of refuse either by zoning or by a separate ordinance. The following chart lists the municipalities within the anticipated coastal zone and the land use controls that are either in effect or that are in the process of being adopted.

LAND USE CONTROLS

City:	Zoning	Sub. Reg.	Urban Renewal	Mob. home	Junk	Dump.
Hudson	X	X	X	zoning	zoning	X
Towns:						
Clermont	*			X	X	X
Germantown	X	X		zoning	zoning	X
Greenport	*	X		X	X	X
Livingston	*	X		X	X	X
Stockport	*	X		X	X	X
Stuyvesant	X	X		X	zoning	X

X recorded

* in process

Listed below are details of the local zoning ordinances or proposed land use plans which affect the coastal zone study area.

I Town of Stuyvesant

Stuyvesant adopted zoning in May of 1973. The town has been divided into the following six districts: Conservation - 10 acres, Agriculture - 5 acres, Rural Residential - 2 acres, Medium Density Residential-40,000-15,000 sq. ft., Neighborhood Commercial - 1 acre, and Industrial - 5 acres.

Portions of each district can be found along the coastal study area. Most of the shore line is occupied by the Conservation and Agricultural districts. Two industrial districts have been established, one in the vicinity of Poolsburg and the other below Newton Hook. Both sites are the result of past industrial activities. The area surrounding the hamlet of Stuyvesant is the only Medium Density Residential district and includes a Neighborhood Commercial area. The crossroad at Newton Hook has also been designated Neighborhood Commercial.

Special provisions have been incorporated into the zoning ordinance to ensure proper development of environmentally sensitive land. These provisions are site plan review and planned unit development. Site review stipulates that before a building permit may be approved for any use other than a single family dwelling, two family dwelling, or farm building, the planning board must approve the site plan. This review assures that the development not only meets all zoning restrictions but that it also is consistent with the surrounding area.

The ordinance also provides for a planned unit development (PUD). This provision allows for the clustering of dwelling units in order to preserve open space or important environmental areas. The requirements for this use state that the average district density may not be increased and that any commercial uses shall be designed to only serve the project. Approval for the PUD must be given by the planning board and the board of appeals.

II Town of Stockport

Presently the town of Stockport, in cooperation with the Columbia County Planning Department, is in the process of preparing zoning regulations. The majority of the lands along the coastal region have been recommended as a Conservation district with minimum lots of 5 acres. This area contains steep slopes, scenic beauty, and soil conditions unacceptable for septic systems. The remainder of the study area is within a proposed Rural Residential area (minimum lot 1 acre) and a proposed Hamlet (minimum lot size 10,000-20,000 sq. ft.)

III Town of Greenport

Although zoning has yet to be adopted, a master plan was prepared in 1971 for the town of Greenport. The land use portion of this plan specifies that a strip of land adjacent to the Hudson River remain an undeveloped conservation area. This area contains steep slopes, few paved roads, some low lands, and soil conditions inappropriate for septic tanks. In northern Greenport, land between the conservation area and Joslen Boulevard has been recommended for Low Density Residential of 4 dwelling units per acre if serviced by public sewer and water. This area is expected to contain much of Greenport's future growth. Other than for conservation, the remainder of the study area in southern Greenport has been recommended as Rural Residential with a density of 1 family per 3 acres.

IV Town of Livingston

A proposed zoning ordinance has recently been submitted to the town board for its approval. The ordinance designated land within the coastal region as either Low Density Residential (LDR) or Hamlet. Minimum acreage per use in the LDR district is one acre. The Hamlet district surrounding Linlithgo recommends lot sizes ranging from 10,000 to 40,000 sq. ft., depending on the availability of public utilities.

Innovative provisions within the ordinance allow for floating Planned Residential,

and Commercial districts along major thoroughfares. Residential clustering by the Planning board and site plan review by the zoning board of appeals for multi-family and non-residential uses is also provided for in the proposed ordinance.

V Town of Germantown

Zoning has been in effect since May of 1974. The lands along the river include the following types of districts and corresponding lot sizes: Conservation - 10 acres, Residential-Agricultural - 1 acre, Village Residential - 20,000-10,000 sq. ft. (depending on utilities available), Suburban Residential - 20,000 sq. ft., Highway Commercial - 20,000 sq. ft., and Industrial - 40,000 sq. ft.. The hamlet of Germantown includes Village Residential, Industrial, and Highway Commercial districts. The industrial site is located on the Hudson River at county route 8 and includes a cold storage operation. The only conservation area is found in northern Germantown at the confluence of the Roe Jan Kill and Hudson Rivers.

The ordinance includes provisions for the clustering of structures in all residential areas with the approval of the planning board and the zoning board of appeals.

VI Town of Clermont

The town board of Clermont is presently reviewing a proposed zoning ordinance for future adoption. The ordinance recommends that land immediately adjacent to the river be designated as Low Density Residential with a minimum lot size of 3 acres.

Further inland, the more densely settled land adjacent to Route 9G is designated as a Prime Residential district with lot sizes of 1 acre. Because of the land features and highway access, strong residential demands are expected in this prime area. .

VII City of Hudson

Urban Renewal within the coastal study area has been ongoing within the city since

the late 1960's. Low and middle income housing projects have been completed overlooking the Hudson River and along Columbia Street. An historic preservation area has been established and facade treatment of historically significant structures is being implemented. In addition, a neighborhood commercial mall is nearing completion at the western end of Warren Street.

The Hudson Zoning Ordinance designated the North and South Bays as Industrial districts. The construction of the railroad along the river transformed these previous inlets into wetlands and marshes. Land filling continues in both bays in hopes of creating more industrial and recreation space for the future needs of the city.

Critique of Local Zoning Efforts

All the adopted and proposed zoning ordinances have been preceded by solid comprehensive planning efforts. Prior to the creation of zoning regulations various professional planners prepared development plans for all the coastal municipalities. These policy statements were determined by considering community goals, natural land features, local facilities, and public utilities. Proposed zoning ordinances were written to implement these plans but few of these ordinances have been adopted. This dearth of adopted ordinances is the most glaring deficiency of the local land use efforts. Only the city of Hudson and towns of Stuyvesant and Germantown have currently adopted their zoning regulations.

Only minimal consideration has been given to the environmentally important areas such as wetlands, stream banks, and areas with limiting slopes along the Hudson River when drafting local land use plans and controls. Although there are some provisions which attempt to intregate development with the character of the parcel, the zoning ordinances, adopted and proposed, provide no "in depth" or mandatory controls for development in these environmentally sensitive areas.

Planned development provisions are incorporated in many of the local ordinances. Basically, they are attempts to preserve open space through the clustering of structures. As previously stated, not enough guidelines are stipulated in these provisions to effectively insure that any proposed planned unit development will be beneficial to the immediate area and the town. Although written with good intentions, these provisions are lacking the developmental and performance standards needed to guarantee development which is compatible with its surroundings.

FUTURE PLANNING EFFORTS

If coastal zone management is to be effective in controlling land along the river, local land use regulations must incorporate provisions that will help to harmonize the ecological and cultural aspects of this area with the economic and social demands for the land. The usual approach of Euclidean zoning (i.e. lot by lot development) is not appropriate to the wetland marshes, tidal flats, and wooded scenic areas existing along the Hudson River. Future development adjacent to Stuyvesant Landing, Hudson's Warren Street, and Cheviot should be historically compatible with these unique areas. Therefore, the proper development of much of the coastal area will depend upon the utilization of land use techniques that can resolve these complex situations.

Historic zoning must be considered. Areas of historic or cultural significance should be identified and architectural controls promoting the historic period of the area should be developed. New construction or the rehabilitation of existing structures would be required to confrom to these standards.

Innovative zoning such as planned unit developments as well as cluster design should be encouraged to protect sensitive ecological areas. In approving subdivisions, local planning boards may wish to cluster dwelling units rather than approve the standard lot desigh. This "clustering" of units could preserve as open space any aesthetically important land.

If planned unit developments are not provided for in local land use controls, zoning ordinances should be equipped with these provisions for the coastal area. This approach would insure development pursuant to specific standards upon the review and approval of the proper authorities. Significant ecological areas could be stipulated as open space before approval of the project is granted.

Perhaps the most promising method of protecting the critical environmental areas of the coastal zone is through the transfer of development rights. This approach would require the identification of ecologically important lands and the establishment of special developmental standards to be applied to any development within these areas. Rather than developing the sensitive land in conformance with the established ecological standards, an owner of land located within an area designated as environmentally sensitive would be allowed to transfer the residential density of this critical land to other adjacent land. The critical land would be left in its natural state. Density transfer of this type would promote the preservation of ecologically sensitive areas without constituting any public condemnation of private land.

TRANSPORTATION ROUTES

River

The Hudson River has been used as a commercial transportation route since its discovery. As the draft needed for commercial vessels increased over the years, it was found necessary to maintain a dredged channel off the county coastline. The channel averages about 30 feet deep and 400 feet in width throughout the county with dredge maintenance of anchorage areas north of Priming Hook in Greenport and south of Houghtaling Island in Stuyvesant. The channel winds back and forth across the river several times, coming close to the Columbia shore at Hudson, Newton Hook, and Greendale. Additional deep water areas that could be developed for commercial docking are located at the old Empire Brickyard channel in Stockport, off the

Clermont shoreline, and near North Germantown. The remainder of the river passes through depths of twenty feet or less. It is important to remember that river depth may change several feet with the tide. This is not a major problem in the deep water areas, but is a point of concern in the shallow regions.

Hudson is the only active port in the county with cement and oil shipping as the dominant activities. Development of new ports depends on various supporting factors in addition to channel availability, such as adequate construction sites, highway access, and environmental factors.

Railroad

Hugging the county coastline and connecting New York City with Albany-Renssalaer is Penn Central's Hudson River Line which provides rail service for the coastal zone. With both passenger (AMTRAK) and freight service, the only regular stop is made in the city of Hudson. Facilities are also available at Germantown and Stuyvesant for freight handling, with the Hudson Branch line serving commercial points more inland.

Because of a 53% increase in 1974 ridership over 1973 figures, the New York State Department of Transportation is planning for high speed rail passenger service along the New York City - Albany - Buffalo corridor by 1976. The Hudson River line will be part of this rehabilitated network. The necessary funding for this service is expected to come from State Rail Bond and federal monies. These funds will be used to rehabilitate existing track and bed conditions to permit greater speeds by present trains. Improved tracks and equipment are expected to generate 2,000,000 patrons a year between New York City and Albany. The completion of this project can be expected to alter commuting patterns and encourage industrial, residential, commercial, and recreational development in the coastal zone.

Rail freight service is provided daily on the Hudson River Line. Although presently operated by Penn Central, the United States Railway Association has reorganized the rail network so that future freight service can be expected to be operated by Conrail Railroad. The line's major users in Columbia County are the Universal Atlas and Interpace cement and concrete plants in Greenport. These corporations are serviced by a siding passing through Hudson's South Bay. A complete list of users on the Hudson River Line follows:

HUDSON RIVER LINE

Service: Daily

Hudson, New York

Stockport Lumber	Receives	Team Track*
Hudson Industries	Receives/ships	Private Track**
Hudson Handling	Receives	Private Track
Universal Atlas Cement	Receives/ships	Private Track
Interpace Corp.	Receives/ships	Private Track
Frank A. Graziano Dist.	Receives	Team Track
Columbia County Dist.	Receives	Team Track

Germantown, New York

Germantown Co-op	Receives	Team Track
Germantown Cold Storage	Receives	Private Track
Clermont Fruit Packers	Receives	Team Track
Orchard Hill Farms	Receives	Private Track
Germantown Lumber	Receives	Team Track

* Team Track - a rail siding owned by Penn Central and used by any number of local businesses.

** Private Track - a rail siding used and owned solely by a private enterprise.

SOURCE: Rail, Bus and Air Service in Columbia County, 1975

Highway

Access to the shoreline by road is available only to a limited degree. Railroad occupation of the river's edge has required the construction of crossings to gain highway entrance to the generally small amounts of land available on the river side of the Hudson River Line. Implementation of the high speed rail service discussed under the preceeding section will jeopardize the chances of new crossing construction and may result in major modifications or the complete abandonment of existing crossings. An inventory of existing public railroad crossings is found in the Recreation section.

Of the three main north-south highways serving the coastal zone, only state route 9J provides motorists with visual access to the River. Running from Stockport north into Rennselaer County, this highway passes through one of the least developed stretches of the lower Hudson River. 9J has a well worn and heavily patched surface which makes what could be a pleasurable drive an often irritating experience.

Routes 9 and 9G serve the middle and southern portions of the coastal zone and handle most of the commercial and thru traffic of these areas, with 9G linking the southern portions of the coastal zone and city of Hudson with the Rip Van Winkle Bridge, the only river crossing in the county.

In summary, highway access to the river, whether physical or visual, is available in limited quantities and generally of poor quality. If commercial and recreational use of the shoreline area is to increase, the highway connections with inland areas must be improved.

LEGISLATION

In addition to the local land controls, the application and effectiveness of which is discussed in the Land Use Planning section, a number of additional federal and state laws are in effect which influence activities in the Columbia coastal zone.

A brief description of some of these laws and regulations follows.

Federal Legislation

I Federal Water Pollution Control Act and Ammendments (F.W.P.C.A.)

This act, orginally passed in 1948, and its ammendments, the more important of which passed in 1972, provide controls for activities which have a detrimental effect on the water quality of the nation's waters. The three principal areas covered by this act are: 1. the regulation of pollutant discharges from point sources such as industrial plants, municipal sewage facilities, or agricultural feedlots; 2. the regulation of oil spills and hazardous substances into federal waters; 3. financial assistance for sewage treatment plant construction. The ammendments of 1972 also call for the elimination of pollutant discharges into navigable waters by 1985 and, wherever attainable, fishable, swimmable waters by 1983.

II Rivers and Harbors Appropriation Act of 1899, and Ammendments

The Rivers and Harbors Act supports the F.W.P.C.A. by prohibiting the discharge of any refuse matter into United States navigable waters. Any construction, filling, or dredging in federal waters is also prohibited unless approved by a permit issued by the Army Corps of Engineers.

III Army Corps of Engineers Regulations

The Corps of Engineers, originally established to be responsible for the maintenance of federal waterways for commercial and defense purposes, has had its jurisdiction expanded over the years in its control of water management. Permits for contruction, filling, and dredging in federal waters are issued by the Corps with reviewal powers held by the U.S. Environmental Protection Agency. The limit of the Corp's jurisdiction has recently been expanded from navigable waters to all federal waters. While not yet officially defined, in considering coastal zone activities the Corp's jurisdiction will include the Hudson River, its associated wetlands, and most of the feeder streams and their wetlands in the shore area, pre-

viously under state and local control exclusively. When finalized, the Corp's new regulations will cause a substantial overlap of power among these three governments.

IV National Environmental Policy Act of 1969 (N.E.P.A.)

In an effort to insure that the various environmental factors involved with federally operated projects are given equal consideration with social and economic factors, the Environmental Policy Act calls for environmental assessments of impacts of a significant nature caused by federally operated programs. The act applies not only to programs directly conducted by federal agencies, but also to projects which utilize federal funds. This is a major step in encouraging a more prudent development of natural resources.

Additional laws such as the Anadromous Fish Conservation Act of 1965, which calls for federal and state cooperation for conservation, development and enhancement of anadromous fish resources and prevention of depletion of these resources from various causes including water resources development, basically support N.E.P.A. by promoting sound development of natural resources.

V. National Flood Insurance Act of 1968

This act established the National Flood Insurance Program in order to make specified amounts of flood insurance available to individuals under federal auspices. In return for the provision of subsidized insurance to existing properties, the act requires that state and local governments adopt and enforce land use and control measures that will guide land development in flood-prone areas in order to avoid or reduce future flood damage.

VI Coast Guard Regulations

Among the Coast Guard's functions are the prevention and control of any pollution of federal navigable waters. Transportation and storage of oil and other hazardous materials are subject to Coast Guard regulations as is the restoration of water resources in the event of discharges. The agency is also responsible for navigational controls and investigation of shoreline damages caused by water craft.

VII Coastal Zone Management Act of 1972

This act enables the states to devise management plans for their coastal areas and requires applicants for federally issued permits to certify that the proposed projects will not violate the objectives of the states' coastal zone management plans.

New York State Legislation

I Water Pollution Control Law, E.C.L. 17

This law prohibits the discharge of pollutants into any waters within the state without receiving permit review by the State Department of Environmental Conservation (D.E.C.). Standards of water quality vary and are dependent upon the stream classification (see Appendix). Also provided for is state assistance to municipalities constructing sewage treatment facilities.

II Freshwater Wetlands Act of 1975, E.C.L. 24

While regulations implementing this law are currently being reviewed, legislation prohibits any dredging, filling construction or other substantial development in any of the state's wetlands after September 1, 1975 unless a permit to do so has been issued by D.E.C.. In the coastal areas this will frequently overlap regulations of the Army Corps of Engineers.

III State Environmental Quality Review Act of 1975, E.C.L. 8 (S.E.Q.R.)

Modeled after the National Environmental Policy Act, the S.E.Q.R. requires that state and local agencies prepare environmental assessments of the impacts of their activities and projects in order to insure that consideration is given to environmental factors as well as those of social and economic importance. This law is scheduled to go into effect in June of 1976.

IV Flood Plain Management Act of 1974, Environmental Conservation Law 36

This Act authorizes participation in the Federal Flood Insurance Program discussed earlier. The program permits municipalities to develop land use controls for identified flood hazard areas.

V Agricultural Districts Law, Agriculture and Markets Law 25-AA

Where districts have been created, this law provides certain real tax benefits to citizens actively engaged in farming and inhibits non-agricultural activities within these districts in an effort to perpetuate the agricultural usage of viable lands in the state.

CONCLUSION

As the first year's program was designed to identify the major problem areas and needs as well as opportunities that the Hudson River area is facing, a certain profile of the coastal zone can be made. Some of the major findings follow:

I. Community Services

The city of Hudson and the town of Greenport are the only communities to provide sewage treatment for their residents. Both have only primary treatment however, and the city depends upon combined sewers for its collection. The town of Stockport, from Stottville to Columbiaville is in dire need of a system as are portions of northern Greenport and the hamlet of Germantown.

II. Industrial/Commercial Activity

For discussion purposes all industrial and commercial activities associated with the River are located in the city of Hudson. These activities have created environmental problems for the area, but could be modified to produce a more compatible association. Other areas of the coastal zone afford easy highway, rail, and water access for activities requiring these components and should be investigated further.

III. Residential Development

As commuting times to the Albany and New York City areas are decreased it is expected that residential development in the county and coastal zone will increase. This increased population will place additional demands on all community services and businesses.

IV. Land Use Controls

The most effective means of promoting proper land use in Columbia County is through zoning. Only three of the seven municipalities have adopted these controls. If additional growth is to proceed ina manner which will be most beneficial to area residents, land use controls must be adopted and include such innovative approaches as planned unit developments, clustering, and density transfer.

V. Recreation

Access to the River is limiting and generally of a poor quality. Contamination

of the water by chemicals has cut fishing dramatically. Except at Clermont, Olana, and lower Hudson, historic resources have received little public attention, but could provide a basis for increasing the attractiveness of the coastal zone as well as increasing revenues to local businesses.

VI. Natural Resources

The importance of the river's resources have been largely ignored. Wetlands continue to be destroyed whenever they come in conflict with expansion of land activities. Although efforts to control pollution have promoted the river's water quality, additional incidents like the disclosure of PCB accumulations indicate that there is still much to be done. The only resource presently developed for commercial benefits is fishing and this has been severely damaged by water quality problems.

VII. Transportation

The river's shipping channel comes close to the county's shoreline at several points, but shipping is only conducted at Hudson. A major rail corridor travels the length of the coastal zone, but stops only at Hudson on a regular basis. Several highways parallel the river course, but the one which provides the most direct access to the shoreline is in a state of severe disrepair.

The Next Step

The first year provided an inventory of existing conditions and pointed out additional information needs. The second phase will attempt to work with this information in developing a management program that will promote the prudent use of the Hudson River's land and water resources. As this will be a phase requiring many decisions, additional efforts will be made to expand public input into the program to ensure that what is developed will be a program which is both feasible and of general satisfaction to those people involved.

In depth studies will be made of areas which have been identified as being of par-

ticular concern to the entire coastal zone or which require additional information before a more complete evaluation can be made of their conditions. These areas might include the following:

I. South and North Bays

These tidal marshes, located in the city of Hudson, have been abused throughout the past 100 years. An evaluation should be made of their existing conditions and potentials and a recommendation for their future use.

II. Cheviot and Stuyvesant Landing

These hamlets are representative of the communities which once dotted the river shoreline and formed a focal point for activities in the surrounding areas. Although there have been some structural changes in the buildings, there is still the potential of restoring these communities to conditions which will serve as a reminder of the county's early dependence on the river. It should also instill a sense of pride in residents of these areas and perhaps serve as a source of revenue from visitors to the communities.

III. Public Access

As public access to the river is limited, it is hoped that the potential of developing the existing access points will be investigated and that pilot development projects may begin.

IV. Visual Access/Scenic Highways

Although the Hudson River is a beautiful sight to see, there are very few places where a motorist can stop and enjoy the views. Improvements should be made to these opportunities and highway reconstruction encouraged to provide a more pleasurable experience for visitors.

V. Expansion of Port Facilities

Limited shipping facilities are available in the city of Hudson. The Hudson River is a valuable transportation route which the county may not be taking advantage of. The possibility of expanding port facilities should also be investigated.

APPENDIX

CONTENTS

Bibliography/Information Sources

1. Broome County Planning Department/Southern Tier East Planning Board, Riverbanks Improvement Program, 1972.

2. Clermont Town Board, Development Plan for Clermont, Hans Klunder Associates, 1974.

3. _____, Proposed Zoning Ordinance, Clermont Zoning Commission.

4. Columbia County Board of Supervisors, Columbia County Profile, Columbia County Planning Department, 1975.

5. _____, Environmental Study, Columbia County Planning Department.

6. _____, Natural Characteristics, Columbia County Planning Department, 1972.

7. _____, Rail, Bus, and Air Service in Columbia County, New York

8. Coastal Zone Management Institute, Sandwich, Ma., Coastal Zone Management, the Process of Program Development, 1974.

9. Environmental Studies Center, University of Maine at Orono, Shoreland Zoning: The Maine Experience, 1972-73.

10. Florida Coastal Coordinating Council, Florida Coastal Zone Management Atlas: A Preliminary Survey and Analysis (excerpts), 1972.

11. Florida, State of Coastal Coordinating Council, Recommendations for Development Activities in Florida's Coastal Zone, 1973.

12. _____, Statistical Inventory of Key Biophysical Elements in Florida's Coastal Zone, 1973.

13. Flynn and Mahoney Consulting Engineers, Comprehensive Sewerage Study for Columbia County, 1968.

14. Georgia Department of Natural Resources, Summary of Coastal Resource Data and Implications for Coastal Zone Management, 1975.

15. Germantown Town Board, Comprehensive Plan for the Town of Germantown, Columbia County Planning Department, 1973.

16. _____, Germantown Master Plan, Hans Klunder Assoc., 1971.

17. Germantown Zoning Ordinance, Germantown Zoning Commission.

18. Hudson Common Council, Comprehensive Development Plan, City of Hudson, Columbia County, New York, Raymond and May associates.

19. _____, City of Hudson Zoning Ordinance, City of Hudson Zoning Commission.

20. Hudson River Valley Commission, Historic Resources of the Hudson, 1969.

21. Hudson Urban Renewal Agency, Historic Hudson, Historic Design Associates and Raymond, Parish and Pine, Inc., 1974.

22. Power Authority of the State of New York, Application to the New York State Board on Electric Generation Siting and the Environment, Nuclear Fueled Unit, Greene County Nuclear Power Plant, Stone and Webster Engineers, 1975.

23. St. Lawrence - Eastern Ontario Commission, The St. Lawrence-Eastern Ontario Shoreline Study - A Planning Guide.

24. Stuyvesant Town Board, Stuyvesant Master Plan, Hans Klunder Associates, 1970.

25. _____, Stuyvesant Zoning Ordinance, Stuyvesant Zoning Commission.

26. Tri-State Regional Planning Commission, The Tri-State Coastal Zone - Management Perspectives, 1975.

27. U.S. Army Engineer District, New York, The Hudson River, 1974.

28. Virginia Institute of Marine Science, Local Management of Wetlands - Environmental Considerations, 1973.

29. _____, Gloucester County Coastal Zone, 1972.

30. Leonard S. Wegman Co., Inc. Columbia County Comprehensive Solid Waste Management Study, 1974.

31. Livingston Town Board, Development Plan for Livingston, Hans Klunder, Assoc., 1974.

32. _____, Proposed Zoning Ordinance, Livingston Zoning Commission.

33. Malcolm Pirnie Engineers, Columbia County Comprehensive Public Water Supply Study, 1969.

34. Maryland Department of State Planning, Integrity of the Chesapeake Bay (Summary), 1972.

35. McVaughn, Rogers, Flora of the Columbia County Area, New York, New York State Museum and Science Services Bulletin Number 360, Albany, New York 1958.

36. New England River Basins Commission, People and the Sound - a Plan for Long Island Sound. (Summary), 1975.

37. New York State Sea Grant Program, Managing Our Coastal Zone, 1973.

SUMMARY OF REPORTS TO COLUMBIA COUNTY ENVIRONMENTAL MANAGEMENT COUNCIL

September 19, 1974 - The concept of the Coastal Zone Management Program was explained and the Council was invited to assist the Planning Department in its development and serve as a "sounding board" for aspects of the program formulation. This was favorably received and the project was made a part of the Councils' work program for the year.

October 14, 1974 - The program in Columbia County was discussed in greater detail with some of the river's problem areas being mentioned. A three man committee was appointed, with Everett Nack serving as chairman, to work directly with the Planning Department in all aspects of the project.

April 14, 1975 - Everett Nack reported that he had met with the Planning Department and discussed the methodology for conducting the study. A meeting will be scheduled with representatives of coastal planning boards to get their feelings on river conditions.

May 12, 1975 - The May 7 meeting with representatives of coastal planning boards was discussed, with mention made of the problems of limited access to the river area, potential development in many land areas, and the effects of the proposed Greene County power plant.

June 9, 1975 - A meeting held between DEC and coastal zone contractors was summarized. This meeting gave some indication as to the kind of progress that has been made in Columbia County in relation to other areas of the state. The Planning Department has been trying to inventory the natural resources and existing land uses of the coastal zone in order to provide some sort of data base from which the management program can develop. The Council's countywide natural resources inventory should create some input into this aspect of the program.

August 11, 1975 - Committee members and Gregory Golgowski of the Planning Department surveyed the southern portion of the county shoreline by boat to obtain an idea of exactly what the shore area looked like from the water and see any conflicts between land use and water quality.

September 8, 1975 - Everett Nack reported that a second meeting held with coastal planning board representatives served to identify major goals and objectives for the management program. These topics were then discussed by the Council with a question raised as to whether or not agricultural activity had a substantial impact on water quality as stated in the goals and objectives summary.

October 6, 1975 - Discussion was encouraged on possible boundaries for the coastal zone. That these boundaries would be preliminary and subject to future revision was emphasized. The idea of having a specific distance back from the railroad tracks was discussed, but abandoned in favor of a more variable boundary following more identifiable roadways.

November 3, 1975 - Gregory Golgowski of the Planning Department summarized some of the achievements of the first year's work in the CZM program. A summary report is being prepared and will be distributed to Council members for review upon completion. The second year program will concentrate on greater public input and development of a management program.

December 1, 1975 - Maps of the boundaries for the coastal study area were presented to the council for comments. Mention was made of the fact that in some instances the boundaries extend a considerable distance away from the shoreline. The concept that this was a study area rather than a control area and that the boundaries were subject to modification as the program progressed was explained in response to this comment.

COASTAL ZONE MEETING
[illegible] Coastal Town Planning Board Representatives
[illegible]
8:00 p.m.
247 Warren Street, Hudson

In Attendance

Amar S. Bandel - County Planning Director
Gregory Golgowski - Planning Aide
Everett Nack - Chairman, Environmental Management Council Coastal Zone Committee
Arthur Van Tassel - Environmental Management Council Coastal Zone Committee
Planning Boards of:

Clermont	-	Leo Platti, Chairman
Germantown	-	Ms. Nora Crawford, Chairwoman
		Ms. Julia Rockefeller, Secretary
Greenport	-	Joseph Millman
Hudson	-	Granvill Hills, Secretary
Stuyvesant	-	Chris Bortugno, Chairman

Richard Van Buskirk - Environmental Management Council Chairman
Fred Roden - Environmental Management Council Vice-Chairman
Kristine Kelly - Environmental Management Council Associate Member

Background information on the importance of the River and its adjacent wetlands to the wildlife dependent upon it as well as the commercial fishing interests was provided by Mr. Nack. Although the River's quality has improved over the past several years, continued regulation of activities present in the coastal zone is necessary to insure that the River's integrity is maintained.

Mr. Bandel explained the existing State Program for development of local management plans and emphasized the fact that this development is currently primarily up to the local governmental authorities. The B.C. Smith Bill of 1974 was discussed as an example of possible regional and state control of management program development.

The influence of the railroad on the coastline was discussed, noting that its presence has cut off many of the existing marshes and bogs, thereby increasing their eutrophication rates as well as inhibiting public access to the River except at a few remaining crossings. The need for more recreation opportunities was recognized and the suggestion of one site every five miles along the River should be available to the public was made.

On the topic of development along the River the proposed power plant construction at Cementon and Athens was brought up and its impact on the communities discussed. The future of the estates south of Hudson was mentioned, and concern expressed that these areas might be sold one day for residential development.

The Planning Board representatives were charged with reporting back to their respective boards on this meeting and identifying critical problems in the coastal areas of their towns, along with current activities or development, and existing controls available for these activities.

It was suggested that the next county meeting on this topic be held in early July.

2nd COASTAL ZONE MEETING
With Coastal Town Planning Board Representatives

August 20, 1975
7:30 p.m. 247 Warren St.

MINUTES

In Attendance

Gregory F. Golgowski - Planning Aide
Everett Nack - Chairman EMC Coastal Zone Committee

Planning Boards of:

Clermont - Leo Platti
Germantown - Norma Crawford, Julia Rockefeller
Greenport - Joseph Millman
Hudson - Granvill Hills
Stockport - Joseph Kilcer, Sr.
Stuyvesant - Chris Bortugno

The meeting was opened by discussing some of the specific concerns of the individual town's coastal sones. Access to the River was considered to be insufficient in Germantown. The dock at Cheviot is too small to be of any real value. The North Germantown anchorage is larger but the town owns only a small portion of the land. It does have a good potential for recreation, however. The town would like to operate a small marina on the River to provide a revenue source. Power plant construction at Cementon was also mentioned as having an adverse effect on the aesthetics of the shorelands and water quality in the River.

The Clermont portion of the coastal zone is occupied by the State Park and other estates and is being considered for three acre zoning in hopes of preserving the character of this area. No development pressures are being felt in this area yet.

The major area of environmental concern in Hudson is the South Bay district. Sewage, dumping, and industrial influences have had a great input on this marshland with the wildlife growth severely crippled as a result. In particular, was the problem of salt runoff into the Bay's water from salt stockpiles. The idea that this area could be made into a city park and education center was mentioned. It is the city's intention to leave the North Bay area undeveloped with most water front activity ocurring near the Boat Club.

The Stuyvesant Conservation Advisory Council is presently investigating the possibility of acquiring a piece of land on the River for public recreational use.

Discussion then centered around the prepared paper on suggested goals and objectives for the study. Comments made on these topics follow.

The influence of inland sewage discharges on the River should not be overlooked, but given consideration in any program to improve River water quality.

It was stated that the report placed too much emphasis on agricultural runoff of pesticides and fertilizers and their influence on water quality when in effect these activities have a very little impact on the overall quality. Drift from spraying and airplane tank discharges were considered to be a problem.

To decrease erosion rates, it was recommended that winter cover for open fields (corn, etc.) be mandatory for farms.

The Army Corps of Engineers' proposal to dredge the River in the Fall and deposit the materials along the shorelines was discussed and concern expressed about the impact of this activity.

To protect against possible pump failure, it was suggested that no major sewage systems be permitted in areas sloping toward the River.

There are presently 19 public access points from New York City to Albany. It was agreed that each town in Columbia County have at least one access to the River. Cooperation will be needed form Amtrak.

Damage caused by speeding ships was discussed. It was recommended that an enforced speed limit along Columbia County be established for all water craft.

As long as the River is given a A quality classification, it was agreed that streams emptying into it should also be maintained at an A level.

A program on the county's coastal zone will be prepared for presentation at individual town meetings.

RARE AND ENDANGERED SPECIES OF FISH AND WILDLIFE*
Columbia County Coastal Zone

SPECIES	STATUS	REASONS FOR DELCLINE
Birds		
Bald Eagle (*Haliaeetus leucocephalus*)	Endangered	Chlorinated hydrocarbon pesticides Nest trees loss and molesting by man; shooting
American peregrine falcon (*Falco peregrinus anatum*)	Endangered	
American osprey (*Pandion haliaetus carolinensis*)	Undetermined	
Mammals		
Indiana bat (*Myotis sodalis*)	Endangered	Cave commercialization; pesticides
Fish		
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	Pollution; spawning stream obstructions; poor fish passage facilities at dam
Reptiles		
Bog turtle (*Clemmys muhlenbergi*)	Rare	Habitat destruction; collection

* Animals that have once, and could still be living in Columbia County coastal zone. Taken from a listing by the U.S. Fish and Wildlife Service.

PROTECTED NATIVE PLANTS

These plants were reported as occurring in the Hudson River area by Rogers McVaugh in Flora of the Columbia County Area, New York in 1958 and are included on the State List of Protected Native Plants. No one may knowingly pick, pluck, sever, remove or carry away, without the consent of the owner thereof, any protected plant. Violations of the law are punishable by fines of up to $25 each. Specific locations of plants are not listed to promote their protection.

COMMON NAME	SCIENTIFIC NAME
Green-dragon (Dragonroot)	Arisaema dracontium
Butterfly-weed (Chigger-flower; Orange Milkweed; Pleurisy-root)	Asclepias tuberosa
Bluebell-of-Scotland (Harebell)	Campanula rotundifolia
American Bittersweet (Waxwork)	Celastrus scandens
Pipsissewa (Prince's-pine; Wax-flower) Spotted Evergreen	Chimaphila spp.
Flowering Dogwood	Cornus florida
Sundew (Daily-dew; Dewthread)	Drosera spp.
Trailing Arbutus (Ground Laurel; Mayflower)	Epigaea repens
All ferns, excluding Bracken (Pteridium aquilinum); Hay scented Fern (Dennstaedtia punctilobula); Sensitive Ferm (Onoclea sensibilis), which are not protected.	Filices (Filicinae; Ophioglossales and Filicales (Native)
Ague-weed, Blue-bottles, Gentian (Gall-of-the-earth)	Gentiana spp.
Holly (Hulver); Inkberry (Bitter Gallberry); Winterberry (Black Alder)	Ilex spp. (Native)
Lily, Turk's-cap	Lilium spp. (Native)
Cardinal-flower (Red Lobelia)	Lobelia cardinalis
All Clubmosses, including: Bear's bed (Christmas-green, Running Evergreen); Trailing Evergreens; Ground Pine; Bunch Evergreen; Festoon Pine (Coral Evergreen; Buckhorn; Staghorn Evergreen;Wolf's-claws); Ground Cedar Creeping Jenny; Ground Fir; Health Cypress	Lycopodium spp.

COMMON NAME	SCIENTIFIC NAME
Bluebell (Roanoke-bells; Tree Lungwort; Virginia Bluevell, Virginia Lungwort; Virginia Cowslip)	Mertensia virginica
Prickly Pear (Wild Cactus; Indian Fig)	Opuntia humifusa (O. compressa, p.p.)
All Native Orchids	Orchidaceae
Golden-club	Orontium aquaticum
Ginseng (Sang)	Panax quinquefolius
Bloodroot (Puccoon-root; Red Puccoon)	Sanguinaria
Bethroot (Birthroot; Squawroot; Stinking Benjamin; Wake-robin); Toadshade, Trillium	Trillium spp.

STATE CLASSIFICATIONS AND STANDARDS OF WATER QUALITY AND PURITY
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
(Part 701, Title VI, Official Compilation of Codes, Rules and Regulations)

701.2 Conditions applying to all classfications and standards. (a) In any case where the waters into which sewage, industrial wastes or other wastes effluents discharge are assigned a different classification than the waters into which such receiving waters flow, the standards applicable to the waters which receive such sewage or wastes effluents shall be supplemented by the following: "The quality of any waters receiving sewage, industrial wastes or other waste discharges shall be such that no impairment to the best usage of waters in any other class shall occur by reason of such sewage, industrial wastes or other wastes discharges."

(b) Natural waters may on occasion have characteriscics outside of the limits established by the standards. The standards adopted herein relate to the conditions of waters as affected by the discharge of sewage, industrial wastes or other wastes.

701.4 Classes and standards for fresh surface waters. The following items and specifications shall be the standards applicable to all New York fresh waters which are assigned the classification of AA, A, B, C, or D, in addition to the specific standards which are found in this section under the heading of each such classification.

Quality Standards for Fresh Surface Waters

Items	Specifications
1. Turbidity	No increase except from natural sources that will cause a substantial visible contrast to natural conditions. In cases of naturally turbid waters, the contrast will be due to increased turbidity.

2.	Color	None from man-made sources that will be detrimental to anticipated best usage of waters.
3.	Suspended, Colloidal or settleable solids.	None from sewage, industrial wastes or other wastes which will cause depostion or be deleterious for any best usage determined for the specific waters which are assigned to each class.
4.	Oil and floating substances.	No residue attributable to sewage, industrial wastes or other wastes nor visible oil film nor globules of grease.
5.	Taste and odor-producing substances, toxic wastes and deleterious substances.	None in amounts that will be injurious to fishlife or which in any manner shall adversely affect theflavor, color or odor thereof, or impair the waters for any best usage as determined for the specific waters which are assigned to each class.
6.	Thermal discharges.	(See Part 704 of this Title.)

CLASS "A"

Best usage of water. Source of water supply for drinking, culinary or food processing purposes and any other usages.

Conditions related to best usage of waters. The waters, if subjected to approved treatment equal to coagulation, sedimentation, filtration and disinfection, with additional treatment if necessary to reduce naturally present impurities will meet New York State Department of Health drinking water standards and will be considered safe and satisfactory for drinking water purposes.

Quality Standards for Class "A" Waters

	Items	Specifications
1.	Coliform	The monthly median coliform value for one hundred ml of sample shall not exceed five thousand from a minimum of five examinations and provided that not more than twenty percent of the samples shall exceed a coliform value of twenty thousand for one hundred ml of sample and the monthly geometric mean fecal coliform value for one hundred ml of sample shall not exceed two hundred (200) from a minimum of five examinations.
2.	pH	Shall be between 6.5 and 8.5.
3.	Total Dissolved Solids	Shall be kept as low as practicable to maintain the best usuage of waters, but in no case shall it exceed 500 milligrams per liter.
4.	Dissolved Oxygen	For cold waters suitable for trout spawning,

	DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall be not less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.
5. Phenolic Compounds	Shall not be greater than 0.005 milligrams per liter (Phenol).
6. Radioactivity	
a. Gross Beta	Shall not exceed 1,000 picocuries per liter in the absence of Sr^{90} and alpha emitters.
b. Radium 226	Shall not exceed 3 picocuries per liter.
c. Strontium 90	Shall not exceed 10 picocuries per liter.

CLASS "B"

Best usage of waters. Primary contact recreation and any other uses except as a source of water supply for drinking, culinary or food processing purposes.

Quality Standards for Class "B" Waters

Items	Specifications
1. Coliform	The monthly median coliform value for one hundred ml of sample shall not exceed two thousand four hundred from a minimum of five examinations and provided that not more than twenty percent of the samples shall exceed a coliform value of five thousand for one hundred ml of sample and the monthly geometric mean fecal coliform value for one hundred ml of sample shall not exceed two hundred (200) from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. pH	Shall be between 6.5 and 8.5.
3. Total Dissolved Solids	None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.
4. Dissolved Oxygen	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "C"

Best usage of waters. Suitable for fishing and all other uses except as a source of water supply for drinking, culinary or food processing purposes and primary contact recreation.

Quality standards for Class "C" waters

Items	Specifications
1. Coliform	The monthly geometric mean total coliform value for one hundred ml of sample shall not exceed ten thousand and the monthly geometric mean fecal coliform value for one hundred ml of sample shall not exceed two thousand from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. pH	Shall be between 6.5 and 8.5
3. Total Dissolved Solids	None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.
4. Dissolved Oxygen	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "D"

Best usage of waters. These waters are suitable for secondary contact recreation, but due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery or stream bed conditions, the waters will not support the propagation of fish.

Conditions related to best usage of waters. The waters must be suitable for fish survival.

Quality Standards for Class "D" Waters

Items	Specifications
1. pH	Shall be between 6.0 and 9.5
2. Dissolved Oxygen	Shall not be less than 3 milligrams per liter at any time.

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ENVIRONMENTAL MANAGEMENT COUNCIL

247 WARREN STREET, HUDSON, NEW YORK 12534

Telephone (518) 828-3375

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758-6595

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Town of Copake
329-3811

AMAR S. BANDEL
Planning Director

TO: Columbia County Coastal Town Planning Boards and Public Organizations

FROM: Richard Van Buskirk, Chairman

SUBJECT: Hudson River Dredging Project

DATE: October 17, 1975

As you may be aware, the U.S. Army Corps of Engineers is considering a maintenance dredging of the Hudson River. Based on its previous dredging activities, the Corps expects that the areas of the river indicated by heavy black lines on the enclosed maps will be in need of sediment removal in order to keep the channel operable. Field checks have not yet been done to identify the specific areas that need dredging, but it estimated that approximately 100,000 cubic yards of material will be removed in the vicinity of the city of Hudson. The areas where material disposal may occur are also identified on an enclosed map. Whether or not these areas will actually be used will depend ont the location of dredging activity, as it is intended to use areas involving the lowest transportation cost. These proposed dredge disposal areas were chosen because they have been used in previous operations.

Original plans called for the projects to be conducted in the late Fall of 1975. This schedule is not expected to be met however, and project commencement will probably be delayed until the Fall of 1976.

The Environmental Management Council believes that alternative methods of dredge disposal can be determined that will be more beneficial to the municipalities involved and has requested that the Corps of Engineers hold a public informational meeting at an appropriate time to discuss these alternatives, as well as conduct a public hearing in Columbia County before this project begins. The Stuyvesant Conservation Advisory Council is also concerned about this and has made a similar request.

As the dredged material is estimated to be as much as 75% sand in some areas, it could prove useful to towns for beach or marina construction or as a fill or cover material.

The Corps has stated that they would be willing to consider alternatives to their plans. This council would appreciate hearing your thoughts on this subject so that our recommendations to the Corps of Engineers will better reflect the interests of Columbia County.

Description of Work:

The U.S. Army Engineer District, New York, proposes to perform periodic maintenance dredging as required in Hudson River from New York City to Waterford, as shown in Figures D-1, D-2 and D-3. The purpose of this maintenance dredging is to restore the authorized project dimensions of the Federal navigation channel, and to allow economic and safe use of the channel.

Dredging operations to be performed were authorized by the River and Harbor Acts of 1925, 1938 and 1954. This maintenance dredging will be performed by the Corps of Engineers, but will be accomplished through contract with private firms.

Most maintenance dredging will be performed in the region between Kingston and Troy, as shown in Figure D-1. Dredging operations above and below this region are expected to be infrequent. It is anticipated that maintenance dredging will be performed biannually. Dredging methods will involve the use of a hydraulic pipeline dredge which will pump the material directly to the upland disposal sites. Should the dredged material be disposed of in the Hudson River dumping grounds shown in Figures S-8 to S-12 or Ocean Mud Dump shown in Figure S-13, clamshell dredges will be used.

All upland disposal sites shown in Figures S-2 to S-7 have been used for disposal of dredged material in the past. Earthen dikes will be used in all upland disposal sites to retain the material and water. After the dredged material settles out, the supernatant water will be returned to the river through a spillway.

The reach proposed to be dredged next is in the vicinity of the city of Hudson. Approximately 100,000 cubic yards of material will be removed by means of a hydraulic pipeline dredge which will pump the material directly to a proposed upland disposal site on Middle Ground Flats, shown in Figure S-6. This dredging operation is scheduled to commence between Fall of 1975 and Spring of 1976, and will continue for approximately two months.

Thereafter, maintenance dredging will be performed in different regions. Past experience indicates that the maximum amount of material to be removed is approximately 300,000 cubic yards if dredging is performed in a region between Kingston, New York and Waterford, New York. It is preferred to place dredged material on the nearest available upland disposal site in the vicinity of the dredging areas.

An alternative method of dredged material disposal is utilization of water dumping grounds; these would include seven sites within the Hudson River and the disposal area in the Atlantic Ocean off Sandy Hook, shown in Figures S-8 to S-13.

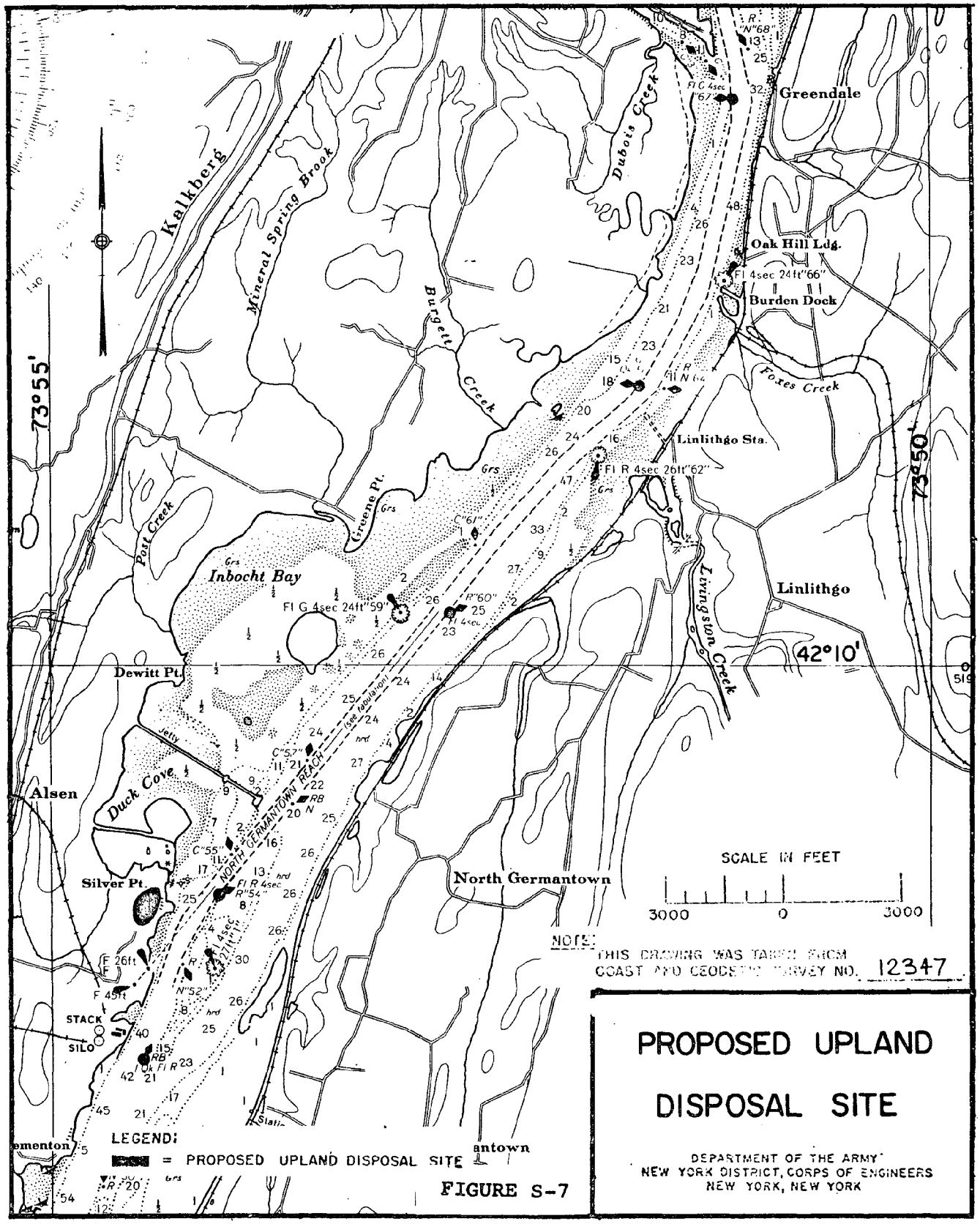
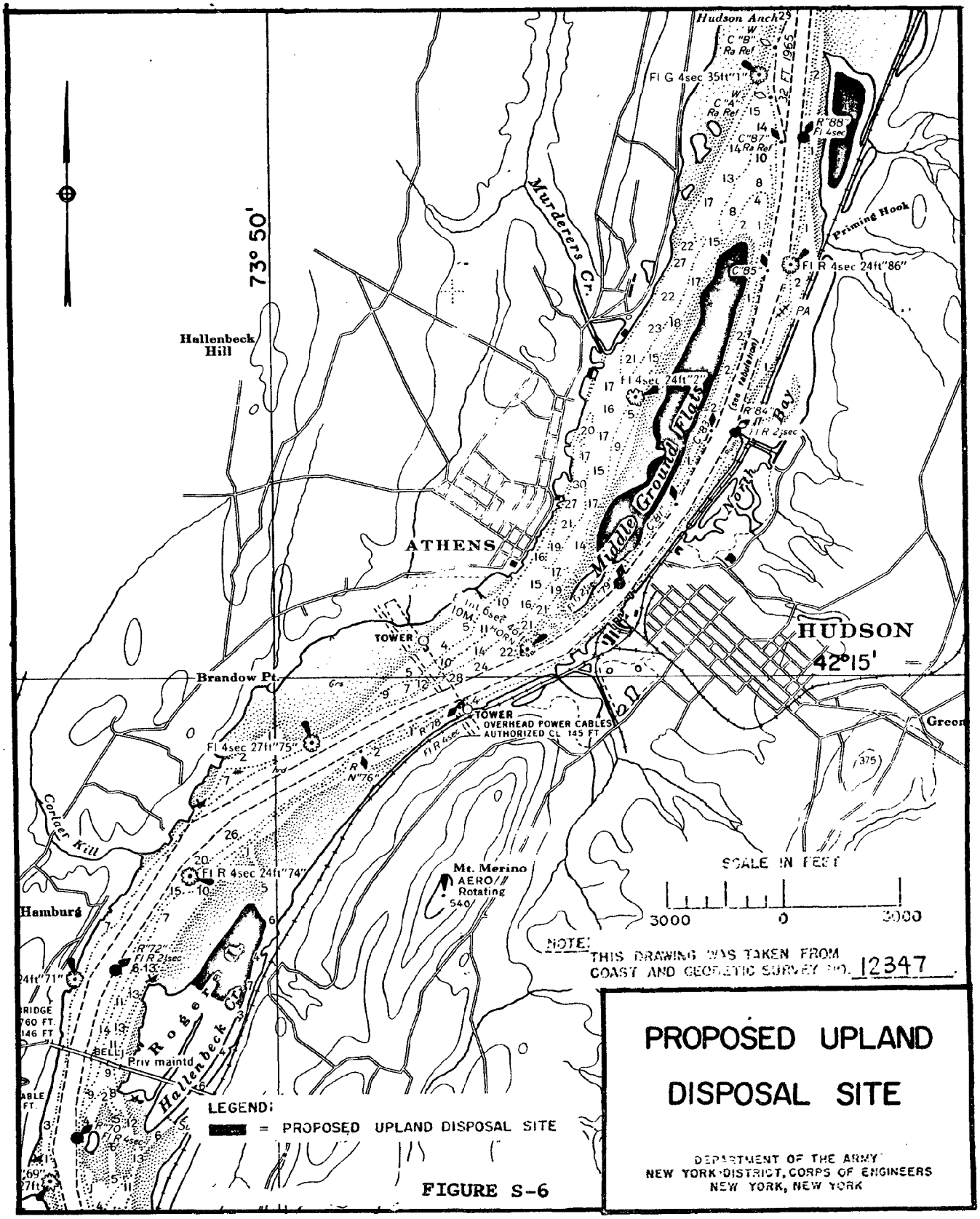


FIGURE S-7

PROPOSED UPLAND DISPOSAL SITE

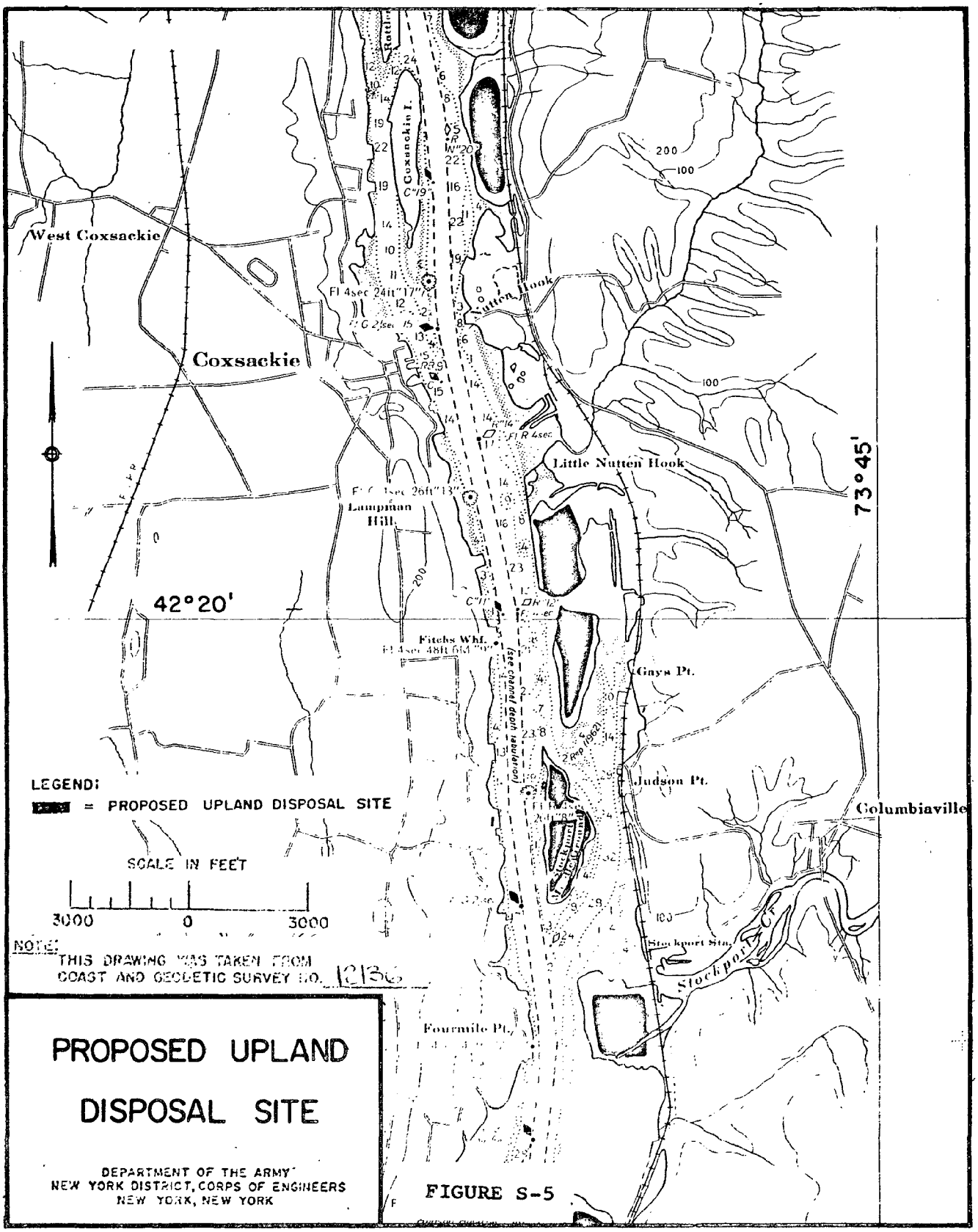
DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK



PROPOSED UPLAND DISPOSAL SITE

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK

FIGURE S-6



PROPOSED UPLAND DISPOSAL SITE

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK

FIGURE S-5

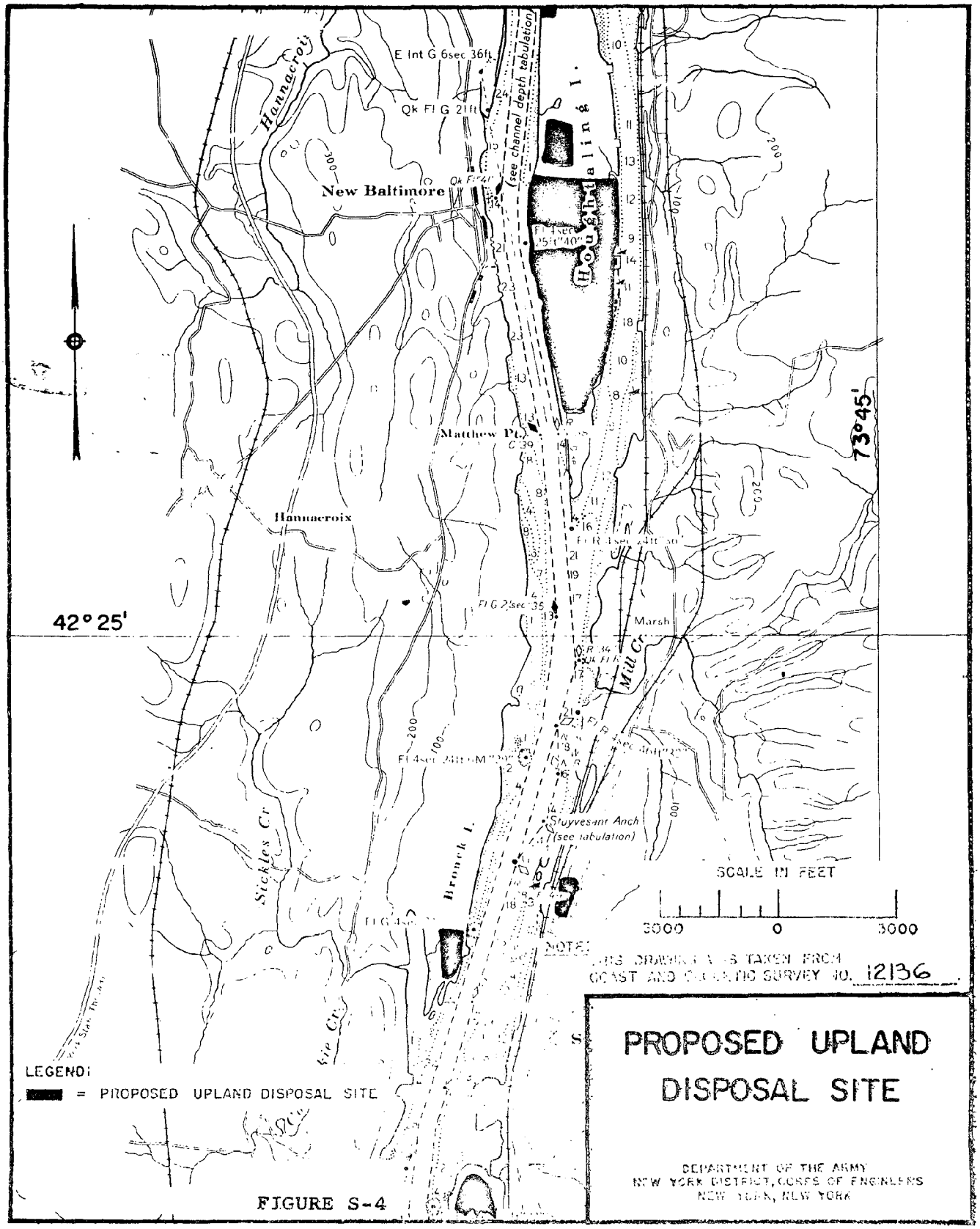
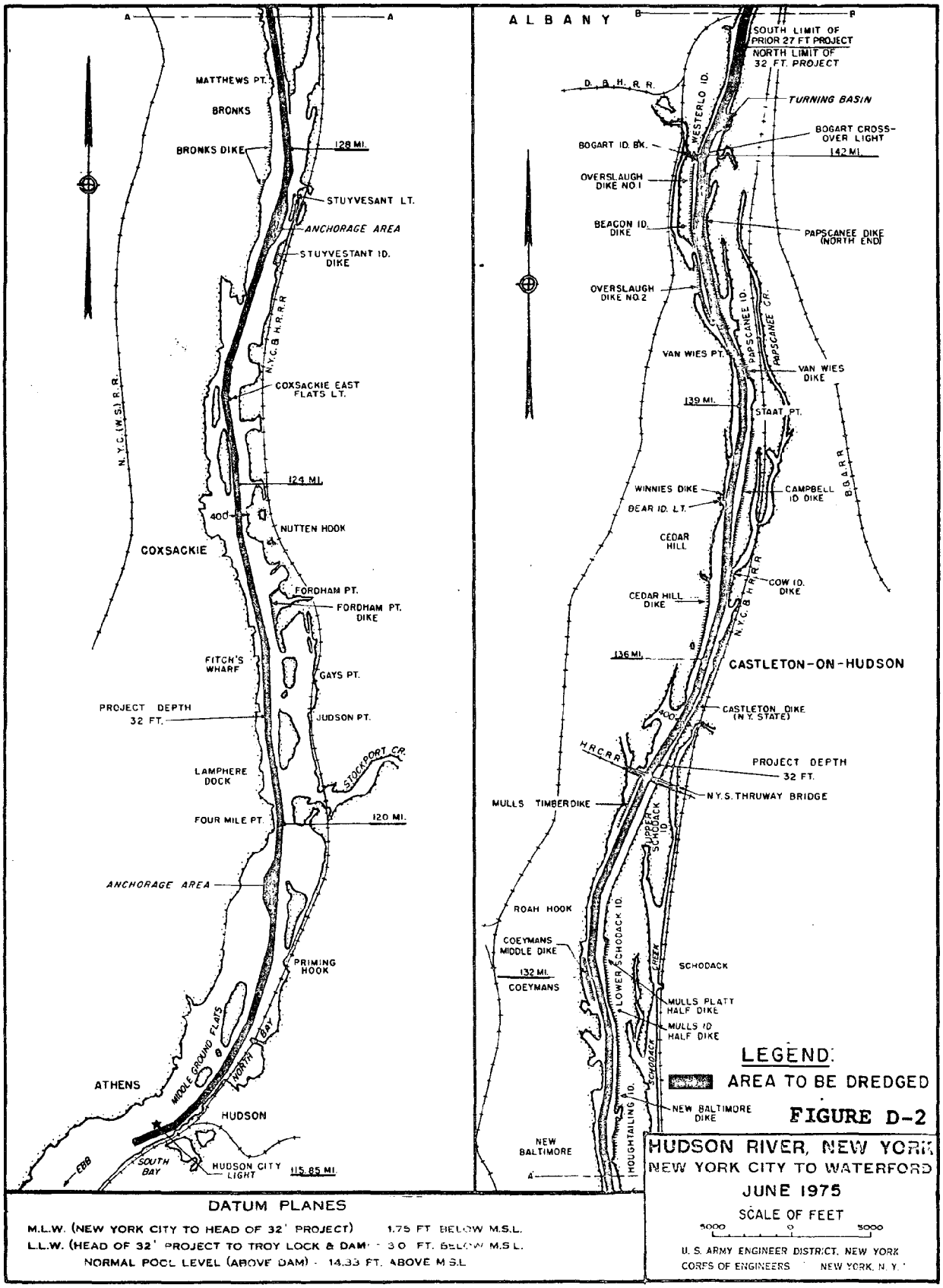

Hannacroix
E Int G 6sec 36ft
Qk Fl G 21ft
(see channel depth tabulation)
New Baltimore
Houghtaling I.
Matthew Pt
Hannacroix
42°25'
73°45'
Marsh
Mill Cr
Stuyvesant Anch
(see tabulation)
Stickles Cr
Bronck I.
SCALE IN FEET
3000
0
3000
LEGEND:
= PROPOSED UPLAND DISPOSAL SITE
PROPOSED UPLAND DISPOSAL SITE
DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK

FIGURE S-4



LEGEND:

AREA TO BE DREDGED

FIGURE D-2

HUDSON RIVER, NEW YORK

NEW YORK CITY TO WATERFORD

JUNE 1975

SCALE OF FEET

5000 0 5000

U. S. ARMY ENGINEER DISTRICT, NEW YORK
CORPS OF ENGINEERS NEW YORK, N. Y.

DATUM PLANES

M.L.W. (NEW YORK CITY TO HEAD OF 32' PROJECT) 1.75 FT. BELOW M.S.L.

L.L.W. (HEAD OF 32' PROJECT TO TROY LOCK & DAM) - 3.0 FT. BELOW M.S.L.

NORMAL POOL LEVEL (ABOVE DAM) - 14.33 FT. ABOVE M.S.L.

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247 WARREN STREET, HUDSON, NEW YORK 12534

Telephone (518) 828-3375

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Claverack, New York 12513

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Hudson, New York 12534

AMAR S. BANDEL
Planning Director

Article I

Coastal Zone Management Program

Ever since Henry Hudson sailed up the River in 1609, the Hudson River Valley has seen its resources subject to continuous stresses as communities have been established and commercial river traffic increased. Many times the needs of the human inhabitants of the coastline and the needs of the natural resources have come into conflict. Problems are the result. Problems such as the destruction of large areas of marsh by pollution and haphazard dredging and filling. Problems such as development on unsuitable soils resulting in erosion and increased danger of storm damage. Problems such as poorly planned land development resulting in the destruction of prime agricultural land and the often unwise use of environmentally sensitive areas. Historically most developmental management programs have found it easier to handle land use problems while the wetlands and water resources are left to face the consequences.

Realizing that there is a real need to better manage the resources of New York's coastal areas, the State Legislature voted participation in the federal Coastal Zone Management Program through the former office of Planning Services and the present Division of State Planning of the Department of State. For the purposes of this program, New York is recognized as having three primary coastal areas; the Long Island coastline, the Great Lakes region, and the Hudson River as far north as the Troy dam. This program permits the State to inventory the coastal zone's natural resources and evaluate the demands placed upon them. From this evaluation a management plan can be constructed which will better direct the use of these often delicate areas. The major importance of this program is that it provides a means of focusing attention to a specific and unique region and provides a system which will allow conscious and informed choices among development alternatives, permit proper planning, and encourage recognition of the long term importance of maintaining the quality of the coastal area to insure both the enjoyment of its amenities and the sound utilization of its resources.

While most counties along the Hudson are having this work done by various agencies at the state level, in Columbia County all information collection and program development is being done by the County Planning Department and the County Environmental Management Council. With the assistance of local boards, this will insure that the management program achieved will reflect the interests and needs of the local residents as much as possible. Input has already been received from the planning boards in town along the river as well as from individual citizens. This assistance has proved valuable and will hopefully increase as the project continues.

Although the specific limitations of areas within the County to be included in the program will not be determined until later in the project, a flexible boundary

has been determined which provides a study area extending from one-half mile to over one mile from the River's edge. As only areas which have a direct influence on the coastal zone's quality will be included in the program, it can be expected that the size of this study area will fluctuate as the project progresses.

It is expected that the recommendations made as a result of the coastal zone program will be implemented through local land use controls. There has been an interest however in the State Legislature to have control over shoreline use exercised at the State and regional levels in a manner similar to the Adirondack Park Commission's operation. This would provide a plan developed by state agencies which may not necessarily reflect the interests and needs of the public as ably as one formulated at a more local level that shows a greater public input in the developmental process. It is therefore important for the public to demonstrate an interest in the planning process to insure that their views are recognized. Presentations will be planned for each of the towns along the River in an effort to point out some of the problem areas and receive comments as to how they should be corrected. As it is the local towns who will have to live with the final program, their input in the development process is important.

Preliminary boundaries for the management program have been developed to determine the activity areas along the River which are most influencial in maintaining the coastline's integrity. The areas required to be studied include the coastal waters and the adjacent shorelands strongly influenced by each other and extending inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters. The boundaries initially established for Columbia County are shown on the accompanying map. This indicates primary areas, where river-land influences are most apparent, and secondary zones where the interaction is less direct but still maintains an important influence on the coastline's quality. These initial boundaries are subject to modification as the study progresses and the importance of each coastal area is realized.

For further information, please contact the Columbia County Planning Department, 247 Warren Street, Hudosn, New York at 828-3375.

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247 WARREN STREET, HUDSON, NEW YORK 12534

Telephone (518) 828-3375

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Hudson, New York 12534

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Hudson, New York 12534

AMAR S. BANDEL
Planning Director

Article II

Vitality of the Hudson River

Until several years ago, the Hudson River was flowing toward destruction. Indiscriminate dumping of waste materials, the filling of wetlands, and development of fragile shoreline areas were rapidly converting the River from the "Great River of the Mountains" seen by the Dutch explorers, to just another dumping ground indiscriminately used by the towns and cities along its banks and the ships that travelled its course.

Since then, there has been a general realization of the importance and uniqueness of the Hudson River and great strides have been made in restoring the water's quality to a point where one can turn to the Hudson with pride and enjoy its amenities to the fullest. Numerous state and federal laws have been enacted to ensure that this quality continues to improve. The federal Coastal Zone Management Act is one of these programs and has enabled the states and local governments to focus on this coastal area and plan for its sound development in the future.

While certain spots along the River are important for their cultural and natural values, the Hudson River as a whole can also be considered a unique area. Not only is it one of the largest rivers on the eastern seaboard, but it is an important inland intrusion of the Atlantic Ocean extending 154 miles to the Troy dam. Tides change four times a day with salt water detectable at times as far upstream as Poughkeepsie. For this reason, the Hudson is more accurately termed an estuary, with its water moving north and south with the tides and so is not just a one way motion typical of rivers. This condition is demonstrated when wastes discharged at one point move back and forth by that point several times while slowly moving downstream.

The periodic eb and flow of the tides creates numerous shallows and marshes in the River which provide excellent habitats for fish and game production. Although handicapped by the poor conditions in the past, the quality of Hudson River wildlife is being rediscovered as the results of pollution control measures are being seen. Duck hunting has grown to be a popular sport in the coastal areas, as has muskrat trapping. The River's link with the ocean provides a variety of fish for recreational fishing with commercial fishing on the increase.

While not of a direct importance to Columbia County, the many fish who depend on the River's flats and marshes for spawning support a large sport fishing industry and associated vacation oriented activities along the New Jersey and New England coasts. Damage to the aquatic resources of our area resutls in economic damages in these states.

In addition to the wildlife they support, these wetlands also serve as a check on storm damage by buffering the shorelines and slowing the water down as it passes through. As the marshes decelerate the water velocity, they also serve as filters with much of the suspended particles settling out.

Despite the subtle benefits of the River's resources and despite the efforts made to correct the problems of the coastal areas, these resources are still abused. Dredging and filling have altered conditions at a number of points on the shoreline, while many of the small bays, marshes, and stream beds feeding the River still receive household trash.

In addition to the important resources of the River itself, the shorelands provide excellent agricultural lands as evidenced by the thriving fruit and dairy farms found along the river course. The forest lands of Clermont and Livingston surrounding the old estates of that area, provide a scenic resource as well as stands of some of the older trees of the County.

The historic sites on the shorelines are starting to gain recognition as the general public interest in history grows. Settlement in Columbia County first occurred along the River, and it is there that many remnants of the area's beginnings are found. The last great battle between the Iroquois and Mohican indians was staged in the area between the City of Hudson and Rogers Island. The County's oldest house is located at the mouth of Stockport Creek. Clermont is the site of Chancellor Livingston's estate. Still to be recognized are areas like Cheviot and Stuyvesant Landing which display the architectural styles found in typical river communities of the days when life centered around the Hudson. The importance of all of these sites lies not only in their historic significance to the River Vally, but their aesthetic and economic value as well. The many fine features prevalent in these buildings and grounds demonstrate a quality unique to these past eras. Such restorations can be an economic boom to neighboring communities as tourist related activities are supported.

The economic potential of the River is also not to be overlooked. The entire length of the coastline is afforded easy access to markets through the use of the existing shipping channel as well as undeveloped deep water areas which could serve docking facilities. The Hudson River Line railroad travels the shoreline with substantial highway routes running parallel on the inland side. Availabiltiy of large amounts of water for industrial processes or drinking supply is certainly no problem with the County's largest creeks presenting some inland extensions of the large amounts of water available directly from the River.

By careful site selection and facility planning, industry can easily coexist with the important natural features of the coastal zone. Expansion of industrial, residential, commercial, agricultural, and recreational activities is not only inevitable, but can be beneficial to an area when conducted in a manner compatible with the natural and cultural values involved.

For further information please contact the Columbia County Planning Department, 247 Warren Street, at 828-3375.

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