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CAPITAL DISTRICT REGIONAL PLANNING COMMISSION

TECHNICAL REPORT

NOV 15 1977

COASTAL ZONE MANAGEMENT IN THE CAPITAL DISTRICT

Coastal Zone Management Program

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CAPITAL DISTRICT REGIONAL PLANNING COMMISSION

The Capital District Regional Planning Commission was established in 1967 by resolution of the legislative bodies of Albany, Rensselaer, Saratoga and Schenectady counties in accordance with Articles 5-G and 12-B of the General Municipal Law of the State of New York. It has been designated as the comprehensive planning agency for the four - county Capital District area by the Governor and the Federal Government pursuant to Section 204 of the Demonstration Cities and Metropolitan Act of 1966.

The CDRPC is governed by a board of twelve commissioners consisting of three representatives appointed by each of the four county legislative bodies. The Commission is financed by annual appropriations from the four member counties on a per capita basis, supplemented by State and Federal Funds.

The Region encompasses over 2200 square miles, had a 1970 population of over 722,000 and consists of 8 cities, 48 towns and 22 villages. Major functions of CDRPC are:

- to formulate regional development goals and a comprehensive regional plan;
- to provide a central clearinghouse for planning and development information and recommendations with government agencies, civic associations of areawide interests;
- to bring into focus the areawide problems and to formulate alternative plans and policies for solving these problems;
- to conduct crime control planning and coordination within the nine-county Upper Hudson Region;
- to perform areawide clearinghouse functions on PNRS project reviews pursuant to OMB Circular A-95; and
- to provide organizational machinery for effective communication and coordination among governmental bodies, agencies, and interested private institutions in the Region.

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BIBLIOGRAPHIC DATA SHEET	1. Report No. CDRPC 200-5	2.	3. Recipient's Accession No.
4. Title and Subtitle: Coastal Zone Management in the Capital District Phase One			5. Report Date: March, 1976 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: Capital District Regional Planning Commission 79 North Pearl Street Albany, New York 12207 Telephone: (518) 474-7444			10. Project/Task/Work Unit No. 11. Contract/Grant No. D-88625
12. Sponsoring Organization Name and Address: U.S. Department of Commerce N.Y.S. Division of State Planning 162 Washington Avenue, Albany, New York 12231			13. Type of Report & Period Covered: Technical Report 14.

15. Supplementary Notes

16. Abstracts

This report provides a framework for development of a coastal zone management program in the Capital District as an element in the statewide CZM program. Existing land and water uses, land characteristics, and regulatory programs affecting land and water uses were analyzed. A land suitability analysis based on physical characteristics was performed and CZM boundaries were proposed. Guidelines for a second-year program are presented.

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17. Key Words and Document Analysis. 17a. Descriptors

Coastal zone management; Planning and management boundaries; Land use controls; Land suitability for development.

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Limited copies available from CDRPC	UNCLASSIFIED	75
	20. Security Class (This Page) UNCLASSIFIED	22. Price $5.00

COASTAL ZONE MANAGEMENT

IN THE CAPITAL DISTRICT

A Report on the First Phase of the New York State
Coastal Zone Management Program in the Capital District.

Coastal Zone Management
Program Development Agreement
Agreement No. D-88625

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
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HT393.N7 C37 1976
FEB 17 1988

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79 North Pearl Street
Albany, New York 12207

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March, 1976

The preparation of this report was financially aided through a Federal grant from the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972. The New York State Coastal Zone Management Program is administered by the Division of State Planning, N.Y.S. Department of State.

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I. INTRODUCTION

When historians speak of the Hudson River's role in the early development of the Capital District Region, they use such words as "backbone", "focal point", "unifying force". The meaning of these words as applied to the Hudson during the last 50 years has diminished; the River became a backyard sewage dump for both industries and residences; it was viewed as an obstacle to be bridged, a gap to be minimized, a barrier to development of both sides of the River.

In more recent years, attention has been focused on the Hudson as a more positive element - a resource of clean water, scenic beauty, recreation and economic development. Significant steps toward lowering the pollution level in the River are being taken now; Albany County has completed several new sewage treatment plants, the Rensselaer County Sewer District's plant will soon be operational, Saratoga County is beginning construction on sewage treatment facilities. Riverside parks and commercial riverfront recreation facilities are now being proposed and constructed. Preliminary findings of a New York State Port Study and the rehabilitation of the Port of Albany are encouraging economic activity on and beside the River.

The Coastal Zone Management Act enacted by Congress in 1972 reflects this growing nation-wide concern and interest in water quality and shoreline development of the major water bodies of the United States. This legislation was enacted to encourage coastal states to develop comprehensive coastal resources management programs. The federal program, administered by the U.S. Department of Commerce (National Oceanic and Atmospheric Administration) is designed to provide planning, coordination and regulation of natural coastal resources in and adjacent to the water in terms of both economic and environmental concerns. It seeks to achieve balanced land use and orderly development along coastal waters by determining potential locations for water-related commerce and industry which will not degrade water quality while designating fragile and unique natural areas to be preserved.

The Hudson River and adjacent lands as far north as the Federal Dam in Troy are included under the Coastal Zone Management Act's definition of "coastal zone" because that portion of the River is "estuarine" - it has an unimpaired connection with the open sea and is influenced by tides up to the dam, rising as much as four feet at high tide in Troy. Municipalities in Rensselaer County included in this coastal zone are: Troy, North Greenbush, Rensselaer, East Greenbush, Castleton-on-Hudson, and Schodack. In Albany County, Green Island, Watervliet, Colonie, Menands, Albany, Bethlehem, and Coeymans are included. These lands on both sides of the Hudson display a rich variety of land uses, from the intensely urban masses of buildings in Albany and Troy to the cornfields in East Greenbush and Selkirk to the thickly wooded islands in Schodack.

New York State, under the administration of the Division of State Planning (Department of State), is currently in the first of three phases of the Coastal Zone Management Program. The three phases are: 1) inventory and analysis of coastal resource information, 2) development of the management program, and 3) implementation of the management program. An important feature of the program is that it will serve to coordinate other federal, state and local land use and environmental programs affecting the coastal zone areas. Two examples of such programs are local land use planning programs funded by the U.S. Department of Housing and Urban Development '701' grants and the recently enacted N.Y.S. Freshwater Wetlands Act. Because of the diverse nature of coastal waters within New York State (Atlantic Ocean, Great Lakes, and Hudson River) and because the federal guidelines encourage local government and citizen participation in the development of the program, the Division of State Planning has delegated local responsibility to regional planning bodies and counties.

The Capital District Regional Planning Commission has been sub-contracted to participate on behalf of the coastal zone communities in Albany and Rensselaer counties. CDRPC has been an areawide comprehensive planning agency since its inception in 1967 and participates in several other comprehensive planning programs such as HUD '701' and the Unified Transportation Planning Work Program. The Commission is thus the logical choice for agency participation in a regional type program such as Coastal Zone Management on behalf of its constituent counties.

The importance of local awareness and participation in the early stages of program development cannot be overemphasized. When implemented in the near future, this program will have a major impact on coastal lands in Albany and Rensselaer Counties. The results of the first phase and second phase work programs will determine the type of management program for New York State. The possibilities range from a state-wide regulatory agency (as in California where the State Coastal Zone Commission must approve any construction or major event within 1000 yards of the Pacific Ocean shoreline) to a more locally-oriented program where State regulations are incorporated into a community's land use controls and ordinances.

This report contains several elements: regional goals and objectives; data inventory; coastal zone boundaries; government controls and regulations; geographic areas of particular concern and areas of development potential; intergovernmental coordination; information exchange; future directions. The first step in the planning process was the formation of regional goals and objectives in order to give direction to the program. Existing data sources were inventoried to assess strengths and weaknesses in information. It was necessary at the outset to establish preliminary study area and mangement boundaries. Once boundaries were chosen, analysis of land characteristics and regulations of land use commenced. The completed analysis provided guidance in revising the boundaries and providing direction for the second phase along with a basis for the first-year report. Throughout the program, coordination between the various units of local government and other government agencies as well as public participation was essential and pursued to the fullest extent.

FIGURE 1

THE CAPITAL DISTRICT'S COASTAL ZONE COMMUNITIES

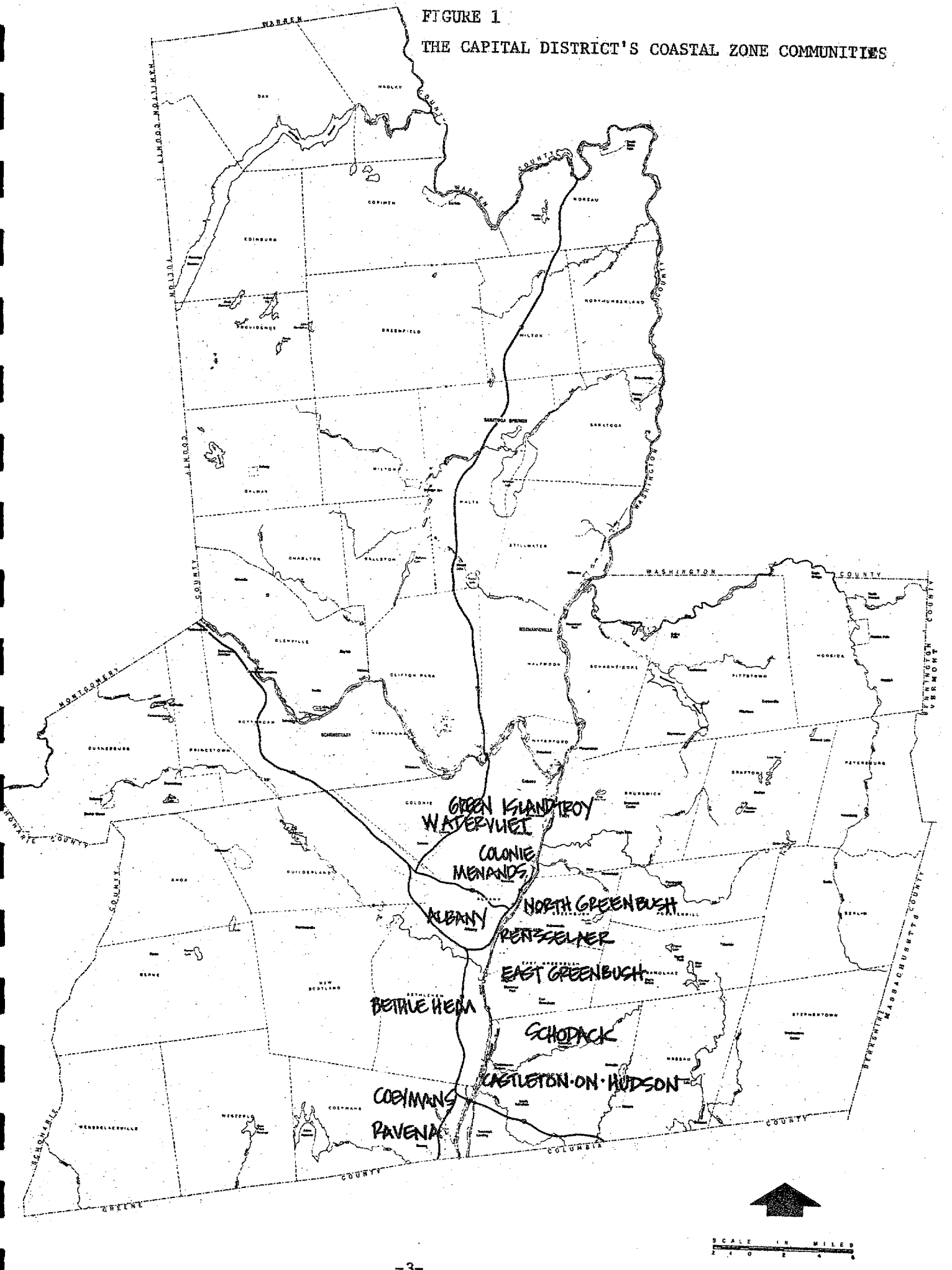


TABLE I: FIRST PHASE WORK PROGRAM

Work Item		Objective
010[1](3.2)[2]	Public and Technical Information Exchange	A. Inform the public of the Coastal Zone Management Program and elicit their response. B. Establish and utilize technical and citizens advisory committees to aid in the process of formulating regional goals and objectives and reviewing and monitoring the program development. These comprise regional, county and local officials and planning agencies, and other individuals and groups having interests in the coastal zone.
110(1.2)	Regional Goals and Objectives	Determine regional goals and objectives for the Coastal Zone Management Program in the Capital District
120 (2.1)	Inventory of Data Sources	Prepare an inventory of existing land use and natural resource information on the coastal zone. This inventory will consist of information available from CDRPC and local planning offices in the form of maps, statistics, and written reports. Since CDRPC has a particular interest in the visual quality of the Region, and has conducted a preliminary study in this area, input from this study will be a useful addition to the more traditional kinds of information being inventoried.
130 (9.1)	Inventory of Government Legislation	Prepare an inventory of local comprehensive plans and land use controls, and other governmental legislation, regulations and controls as they apply to the coastal zone. This task is viewed as a compliment to work item 250 (4.2) which focuses on local regulations.
210 (6.2)	Determination and Review of Coastal Zone Boundaries	Determine the coastal zone boundaries in the Capital District and review the alternative boundaries proposed by DOS
220 (7.3)	Cartographic and Analytical Study of Geographic Areas of Particular Concern	Provide cartographic and analytical information on lands requiring special attention, preservation, or restoration because of endangered resources, fragility, or sensitivity to development.

[1] CDRPC work item code

[2] DOS work item code

Work Item		Objective
230 (8.1)	Analysis of Potential Development Areas	Identify potential development areas and review and assess the nature of potential development and/or conflicts
240 (4.3)	Intergovernmental Process	Participate in discussions and/or workshops with DOS to determine regional interests and activities
250 (4.2)	Review of Government Regulations and Controls	Participate in the establishment of review criteria to be used in the evaluation of local 701 plans, zoning and subdivision ordinances, and other controls and regulations as they relate to the coastal zone. This evaluation will be conducted jointly by DOS, CDRPC, and other local agencies.
260 (9.2)	Troy Model Local Coastal Zone Ordinance	Review of the City of Troy's model coastal zone ordinance development. Technical assistance will also be offered if requested.
310 (7.4)	Interim Technical Report	Prepare a draft of the interim technical report on resources of particular concern based on uniform standards and criteria
410 (9.3)	Summary of Coastal Zone Management Approaches and Techniques	Prepare a summary of information related to the need, desirability and feasibility of coastal zone management approaches and techniques which could have implications for legal and institutional arrangements particularly on the county and local level.

[redacted] CAPITAL DISTRICT COASTAL ZONE MANAGEMENT PROGRAM DEVELOPMENT STUDY

WORK PROGRAM FLOW CHART

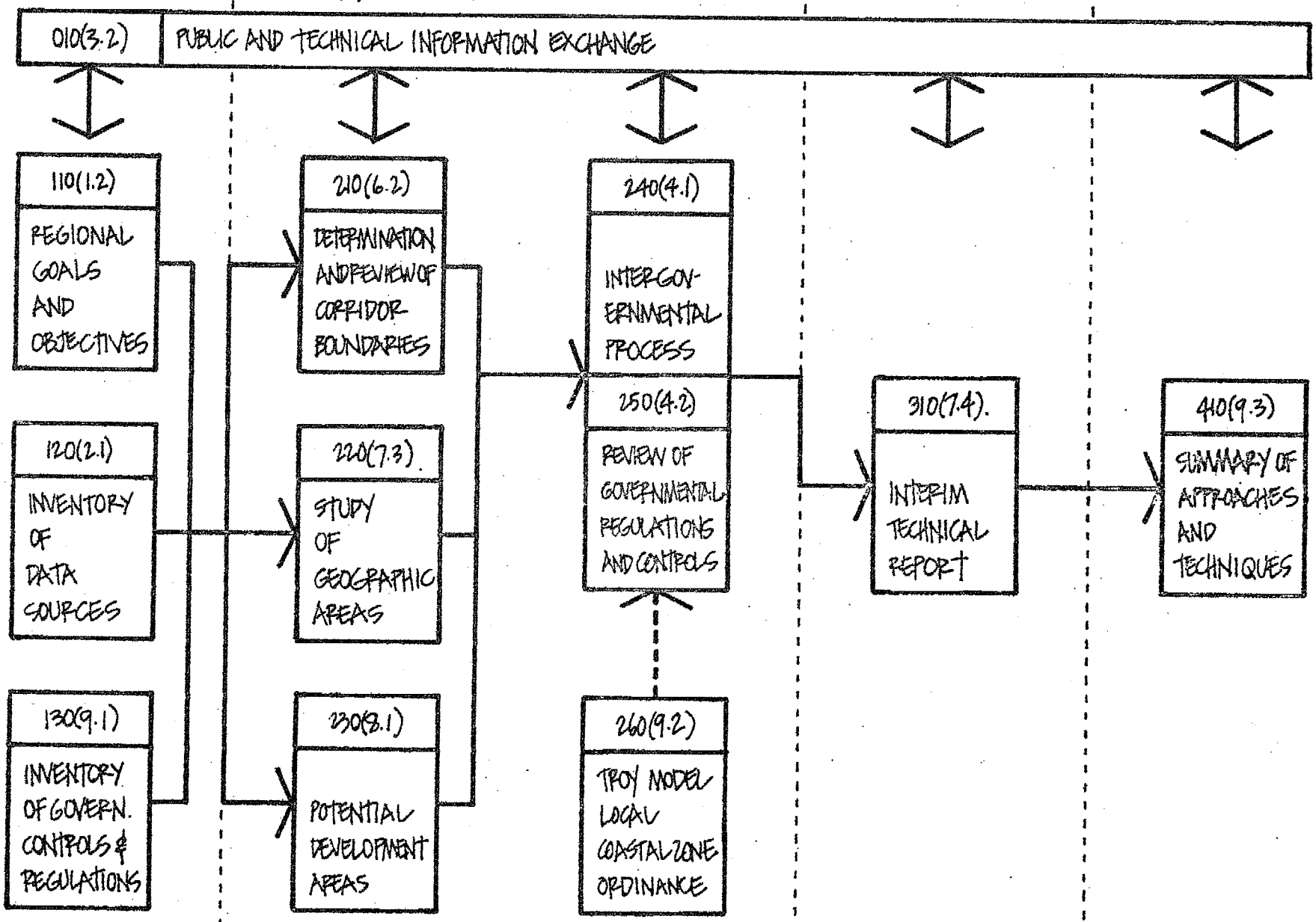


FIGURE 2

2. REGIONAL GOALS AND OBJECTIVES

The first year of the Coastal Zone Management Program development phase is a period of data collection and analysis directed toward achievement of the overall program goals and related objectives for this Region as cited below. These goals are consistent with relevant sections of CDRPC's Goals for the Capital District and the goals and objectives of CDRPC's Preliminary Regional Development Plan. The goals and objectives for the CZM program in the Capital District are based upon the goals and objectives described in the Statewide program. Those goals and objectives appropriate to this region were selected and suitably modified to provide guidance for the Capital District program and to retain the maximum amount of consistency with the State's goals and objectives. As each goal and its related objectives is listed, specific reasons are listed for its inclusion (if appropriate) and the work item designed to approach the goal.

GOAL: TO PRESERVE AND ENHANCE THE NATURAL RESOURCES OF THE REGION'S COASTAL ZONE FOR THE PRESENT AND FUTURE

OBJECTIVES: Preservation of wetlands through public acquisition and enforcement of appropriate legislation.

New York State's statewide policy in its Freshwater Wetlands Act is the protection of these critical resources. The Hudson River and adjacent areas in this Region contains many island and marsh environments which would be classified as wetlands.

Protection of wildlife and vegetation habitats.

In the river, in the rich alluvial soils of the shorelands, and in the wetland-type areas cited above, a wide variety of flora and fauna thrive.

Protection of distinct geologic formations and features.

The escarpment and steep slopes marking the edge of the Hudson River Valley are in several places in this Region dramatic and at the same time fragile.

Regulation of the use and removal of mineral resources.

Gravel and cement operations, brickworks and other extractive industries are a significant and sometimes controversial part of the area's economy and environment.

WORK ITEMS:
120 (2.1) Inventory of Data Sources
210 (6.2) Determination and Review of Coastal Zone Boundaries
220 (7.3) Cartographic and Analytical Study of Geographic Areas of Particular Concern
230 (8.1) Analysis of Potential Development Areas

GOAL: TO PROVIDE FOR THE ONGOING ENJOYMENT OF NATURAL AMENITIES IN THE COASTAL ZONE

OBJECTIVES: Provision of opportunities for public access and public recreation in the coastal zone.

Most of the shore lands are privately owned, State-owned and/or isolated by highways from public access. In Troy, for example, the river is generally isolated from residents; but where it is accessible, there are problems of safety with several documented accidents.

Preservation and enhancement of scenic views and vistas.

CDRPC's study in 1974-5, The Perceptual Environment: Quality Assessment in the Capital District, indicated that the Hudson River area of the Region is one of the dominant sources of scenic views.

Preservation and restoration of historic and unique natural areas.

The Hudson River valley has a long history of settlement with numerous buildings and sites remaining today which mark significant persons and events as well as exemplifying many eras of daily life. The late discovery of Fort Orange during the construction of I-787 warns of the need to prevent future destruction of valuable historic landmarks.

WORK ITEMS:
- 120 (2.1) Inventory of Data Sources
- 210 (6.2) Determination and Review of Coastal Zone Boundaries
- 220 (7.3) Cartographic and Analytical Study of Geographic Areas of Particular Concern
- 230 (8.1) Analysis of Potential Development Areas

GOAL: TO PROMOTE PUBLIC WELFARE AND ECONOMIC WELL-BEING IN THE COASTAL ZONE

OBJECTIVES: Promotion of orderly development within the coastal zone, avoiding land use conflicts and unnecessary degradation of natural resources.

Because of the fragmented nature of local jurisdiction over land use control in the Hudson River area, there is a need to unify and coordinate these regulations to establish development and preservation priorities for the coastal zone.

Maintenance of the economic viability of coastal communities by providing for regional infrastructures such as ports, power plants and sewage treatment facilities, and other water-oriented commercial and industrial developments.

Competition for lands for such uses is fierce as interest in water-oriented activities returns to this area. There is a need to establish priorities for the use of this relatively scarce land.

Promotion of wise uses in such natural-hazard areas as flood plains where development could unreasonably damage life or property.

A significant portion of the lands in the Hudson River area are designated as flood-prone by the National Flood Insurance Program. Coordination with and supplementation of this program is indicated.

Preservation of high-viability agricultural and forest lands.

The Hudson River area has several tracts of agricultural land and some heavily wooded areas worthy of protection.

WORK ITEMS:
- 120 (2.1) Inventory of Data Sources
- 210 (6.2) Determination and Review of Coastal Zone Boundaries
- 220 (7.3) Cartographic and Analytical Study of Geographic Areas of Particular Concern
- 230 (8.1) Analysis of Potential Development Areas

GOAL: TO IMPLEMENT THE MANAGEMENT PROGRAM THROUGH COORDINATION OF REGIONAL AND LOCAL PLANS, PROGRAMS, AND PROJECTS WITH THOSE OF VARIOUS GOVERNMENT AND PRIVATE INTERESTS.

The role of community participation is particularly important here.

OBJECTIVES: Evaluation of existing local and State laws and regulations to determine their adequacy in meeting the above goals and objectives.

The question, "Is a Coastal Zone Management Program needed?" must be addressed.

Indication of those existing local and State control mechanisms which need be upgraded, strengthened, or otherwise modified to achieve the above goals and objectives.

Assessment of local and State relationships in terms of the above goals and objectives to maximize the efficiency of each level of government in carrying out its appropriate regulatory and administrative roles.

Recommend establishment of new local or State administrative or regulatory functions to further implement the coastal zone management goals and objectives.

WORK ITEMS:
- 010 (3.2) Public and Technical Information Exchange
- 130 (9.1) Inventory of Government Legislation, Regulations and Controls
- 240 (4.3) Intergovernmental Process
- 250 (4.2) Review of Government Regulations and Controls
- 260 (9.2) Troy Model Coastal Zone Ordinance

A draft of CDRPC's Regional Goals and Objectives for Coastal Zone Management was distributed to members of the two advisory committees (see Section 8) formed for this program. The committees expressed general agreement with these goals and no specific comments were made. Members of the Local Government Advisory Committee emphasized the need for close communications with local communities during the decision-making process toward achievement of these goals.

3. DATA INVENTORY PROCESS AND PRODUCTS

Information on the natural and man-made physical features to be utilized in the analytical sections of this study was gathered primarily from existing sources available to CDRPC. Information was updated, field checked, and verified as necessary.

For the purposes of preliminary data collection and study, a planning area one mile wide on each side of the river was delineated from the sourthern ends of Albany and Rensselaer Counties to the Federal Dam in Troy and Green Island (for further details, see page 14). The information on this planning area was recorded on a base map composed of the six USGS quadrangles covering the planning area. The scale is 1:24,000. Table 2 lists the information compiled, significant categories, and sources. These maps in work print form are available at the CDRPC offices for inspection. An overlay technique was used to synthesize this information in the development of the map "Land Suitability for Development" accompanying this report (see back pocket). The analytical procedure is explained in detail in Section 6. The general methodology used in this project is described in Methodology for the Preparation of Regional Development Plan Alternatives, CDRPC Technical Report 100-1, 1974.

There are several areas of information of vital importance to coastal zone management to which CDRPC does not have direct access, nor is the expertise directly available to collect this information in the field. In the areas of vegetation and wildlife ecology, and soils and geology, the CDRPC staff will depend upon the NYS Department of Environmental Conservation and the United States Soil Conservation Service for data for this Region. At two meetings (May and November, 1975) and through a NYS-DEC questionnaire regarding coastal zone information sources and requirements, the agencies have agreed to exchange information where needed and fill gaps where possible. It is hoped that the data required by CDRPC will be available when needed during the second phase of the program.

A comprehensive set of color slides and black-and-white prints was prepared especially for the CZM program. These photographs were taken on a river cruise in July, 1975 primarily to serve as a method for describing the coastal zone to the public but also to aid in updating land use information and to document areas of varying visual quality. It is anticipated that thisphotographic collection will be utilized frequently through the next phases of the program as public participation increases.

TABLE 2: PHYSICAL FEATURES INFORMATION ON THE CAPITAL DISTRICT COASTAL ZONE

Type of Information	Significant Categories	Sources
Topography - slope	0 - 8% level 9 - 15% moderate 15+% - steep	CDRPC's Preliminary Regional Development Plan, Consultation Document 100-5, 1975
Water Bodies		CDRPC's Regional Storm Drainage Study, Consultation Document 200-2, 1974
Flood Plains		CDRPC's Regional Storm Drainage Study
Wetlands		CDRPC's Regional Storm Drainage Study
Agricultural Lands	Primary Secondary	CDRPC's Preliminary RDP, New York State's LUNR Inventory, 1968
Wooded Lands		CDRPC's Preliminary RDP, New York State's LUNR Inventory
Existing Land Use	Low-Medium Density Residential High Density Residential Institutional Commercial Shopping Center Manufacturing Landfill and Extractive Transportation Cemeteries and Recreation	CDRPC's Preliminary RDP, complete field check
Visual Quality	Excellent, Good, Average, Fair, Poor	CDRPC's The Perceptual Environment: Quality Assessment in the Capital District Technical Report 200-4, 1975
Historic Sites		National Register of Historic Places Hudson River Valley Commission Hudson Mohawk Industrial Gateway Renselaer County Bureau of Planning

List of Work Maps

Land Use - 1975
Natural Resources (Agricultural Land, Wetlands, Flood Plains, Water Bodies, Forested Land)
Slopes
Historic Sites
Existing Local Zoning
Existing Local Master Plans

4. COASTAL ZONE BOUNDARIES

The determination of a boundary for a study area is one of the most complex problems faced by planners. The coastal zone is one such area, characterized by a diversity of natural areas and the complexities of existing developmental, political, and administrative realities. Natural systems, jurisdictional units, and socio-economic communities must all be recognized in the boundary determination process. Impacts caused by influences beyond boundaries should be anticipated during the boundary determination process. The final boundary selection must also address such considerations as legal adequacy, political acceptability, and potential for future modification. In essence, the boundary must be broad enough to include all possible geographic and land use features which directly impact the coastal waters but sufficiently narrow to facilitate effective management.

BOUNDARIES IN OTHER STATES

Many individual criteria have been used by other states and municipalities for boundary determination purposes. These include coastal highways, permanent vegetation, political boundaries, 100-year floodplains, drainage basins, wetlands and associated lands, areal measurements, elevation contours, tidal flows, and arbitrary distances. The Coastal Zone Management Act of 1972 states that boundaries should be "inland from the shoreline to the extent necessary to control land uses which may have a direct and significant impact on the coastal waters." Table 3 illustrates the coastal zone boundaries determined by thirteen other states. New York is somewhat different than these states because it has three distinct types of "coastal zones": a seacoast (Long Island), an estuary (the Hudson River), and an inland "coast" (the St. Lawrence

TABLE 3

COASTAL ZONE MANAGEMENT PROGRAM BOUNDARIES IN OTHER STATES

Alabama	Inland from the shoreline only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters.
California	The highest elevation of the nearest coastal mountain range; the permit area is 1,000 yards landward from mean high tide.
Delaware	Coastal highway and road system.
Florida	Two to twenty-five miles as defined by census enumeration districts.
Louisiana	The twenty-six coastal parishes (counties).
Michigan	1,000 feet from the high water mark of a Great Lake or connecting waterway.
Minnesota	1,000 feet of the normal high water mark of a lake, pond, or flowage, and land within 300 feet of a river or stream.
New Jersey	Coastal highway and road system.
Oregon	Same as California.
Rhode Island	"...extending over land to areas necessary to conduct resources management programs..."
Texas	All counties having any tidewater shoreline.
Virginia	Boundaries of counties and cities.
Wisconsin	Same as Minnesota.

River and Lakes Ontario and Erie). Thus, a uniform statewide boundary as such might not be appropriate for New York State whereas segmentation (uniformity within each type of coastal zone) is desirable.

CAPITAL DISTRICT BOUNDARY

The Federal Office of Coastal Zone Management recommends the establishment of a preliminary planning boundary before creating a more precisely defined boundary for coastal zone management purposes. CDRPC has defined an interim coastal zone boundary of one mile from the shoreline of the Hudson River for planning purposes. This planning boundary coincides with the jurisdictional boundary of the Hudson River Valley Commission.

The Office of Coastal Zone Management has described three alternatives for coastal zone boundaries. These alternatives are: 1) biophysical -- determined by single or a combination of natural features; 2) biophysical/ administrative -- a combination of natural features, political boundaries, and cultural features such as highways, railroads, and utility lines; 3) multiple -- "a combination of sections or zones of the coastal area based on different functions, resource bases, or other factors deemed critical to effective coastal zone management" or "areas requiring different levels of intensity of management control." The second alternative was selected for use in the Capital District. The biophysical alternative could be delineated on a map, but actual boundary demarcation and recognition would be extremely difficult. This section of the Hudson Valley contains a great variety of biophysical features; the two sides show distinctly different forms (Figure 3).

The multiple alternative was deemed inappropriate because its applicability would be severely limited in the lapital District's small scale coastal zone and as initially defined by the one-mile deep preliminary planning boundary. Single-purpose

FIGURE 3

CROSS-SECTIONS OF COASTAL ZONE TOPOGRAPHY

HORIZONTAL SCALE: 1:24,000

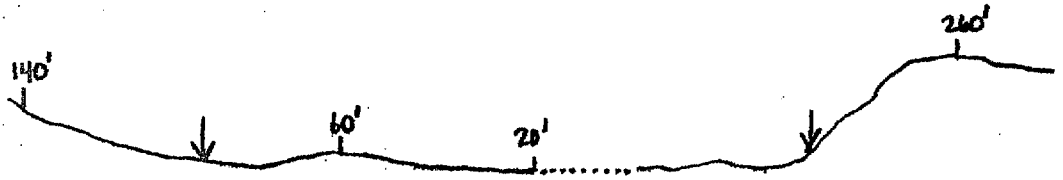
VERTICAL EXAGGERATION: 5X

↓ COASTAL ZONE BOUNDARY

..... HUDSON RIVER

XX' VERTICAL ELEVATION

1. SOUTH OF FEDERAL DAM, GREEN ISLAND - TROY



2. ALBANY, NORTH GREENBUSH - MENANDS RD., MENANDS

3. SOUTH OF PARKER-DUNN MEMORIAL BRIDGE, ALBANY - RENSSELAER

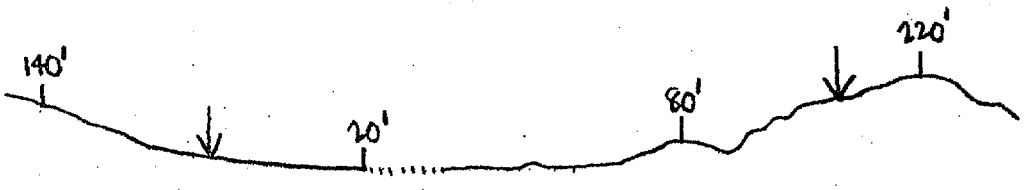
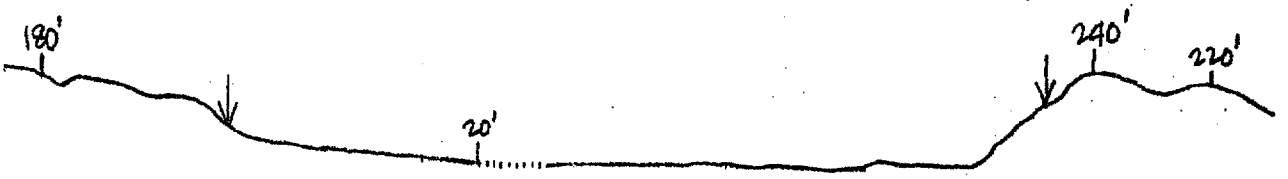


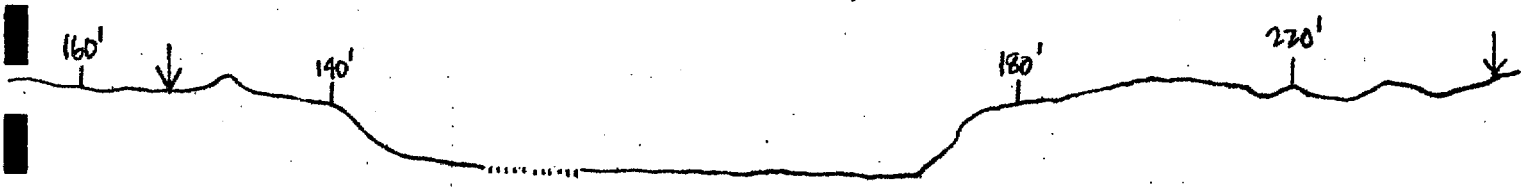
FIGURE 3 (cont.)

4. SOUTH OF NIAGARA-MOHAWK POWER PLANT, BETHLEHEM - HAYES RD., E. GREENBUSH



5. NYS THRUWAY EXIT 22, BETHLEHEM - RT. 150, CASTLETON

6. RT. 143, COEYMANS - SCHODACK LANDING, SCHODACK



boundary alternatives such as arbitrary distances (i.e., one mile or one kilometer), flood plains, and transportation arteries were also rejected as being insensitive and insufficiently comprehensive indicators of the coastal zone.

The selection of a biophysical/administration combination of natural features, political boundaries, and cultural features was utilized because it allowed maximum flexibility in delineating an inclusive, rational, reasonably identifiable and recognizable boundary. The method acknowledges the competition for dominance, in this area of often intensive human activity, between man-made and natural features in the landscape. Also, because this boundary may enclose an area of special regulation applicable to both public agencies and private property owners, the value of a readily visible, easily demarcated, and unequivocal boundary where possible should not be underestimated in facilitating future management activities.

The delineation of the boundary of the coastal zone in the Capital District was accomplished by using several criteria in combination. These include existing land use, contour lines, configuration of stream valleys draining into the Hudson, transportation arteries and utility lines (for ease of demarcation), planned future land use, and CDRPC's Preliminary Regional Development Plan. Several alternative boundaries and the actual proposed boundary were mapped at the scale of 1:24,000 on a composite NYS DOT planimetric base. The following is a description of the various segments of each boundary in Albany and Rensselaer counties (the segments are listed from north to south):

ALBANY COUNTY

Delaware and Hudson Railroad from the Cohoes City Line to Route 32 (Menands).

Route 32 to Retreat House Road (Bethlehem).

Retreat House Road to Route 144 (Bethlehem). This segment includes all existing land uses at the bottom of the river terrace.

Route 144 to the Penn Central Railroad (Bethlehem). These four segments approximate the base of the river bluff.

Penn Central Railroad to Route 144 following an unnamed stream. This segment deviates from Route 144 to include an oil terminal which has a direct connection to the river via a pipeline.

Route 144 to New York Telephone line (Coeymans).

New York Telephone line to the Village of Ravena boundary. This segment deviates from Route 144 to allow inclusion of several industrial facilities which have an impact on Coeymans Creek and the river.

Village of Ravena boundary to Hannacroix Creek and tributary to the Greene County boundary. This segment allows inclusion of the entire hamlet of Coeymans.

RENSSELAER COUNTY

Intersection of Glen Avenue and the abandoned Boston and Maine Railroad grade to Hoosick Street along the railroad grade. Hoosick Street to Seventh Avenue. Seventh Avenue to Jacob Street. Jacob Street to Sixth Avenue. Sixth Avenue to State Street. State Street to Seventh Avenue. Seventh Avenue to Ferry Street. Ferry Street to Fifth Avenue and across the Poestenkill to Madison Street. Madison Street to Burden Avenue. Burden Avenue to Stow Street. This segment approximates the base of the river terrace in the City of Troy.

Straight line from the intersection of Stow Avenue and Hudson Street (Troy) to the bend in the boundary between the City of Rensselaer and the Town of North Greenbush. This segment allows the inclusion of a substantial portion of the Highlands and several streams which drain into the river.

Straight line from the bend in the Rensselaer boundary to the ninety-degree bend in the Rensselaer boundary.

Straight line from the ninety-degree bend in the Rensselaer boundary to Partition Street Extension. Straight line from the curve in Partition Street Extension to the intersection of Third Avenue and the City of Rensselaer boundary. This permits inclusion of the existing landfill site for the City of Rensselaer and the proposed site for a new intermunicipal landfill site.

City of Rensselaer boundary to the intersection with the abandoned Penn Central Railroad grade. Abandoned railroad grade to the intersection with the East Greenbush/Schodack boundary. The remainder of this boundary segment coincides with the planning boundary of one mile from the shoreline for the length of the Town of Schodack to Columbia County. This segment includes the entire Village of Castleton-on-Hudson and all land uses in the wetlands near the river and along the base of the river terrace as well as land uses on the escarpment and numerous valleys whose streams drain into the river. The accompanying map (back pocket) illustrates this boundary as described.

ADVISORY COMMITTEE COMMENTS

A preliminary CZM Boundary Map and a Technical Memorandum describing the process of boundary determination and the actual location of the preliminary boundary were distributed to the CZMP Local Government and Technical Advisory Committees on October 15, 1975 for review and comment. The content of the paper is essentially identical to the preceeding paragraphs and the map shows a boundary similar to that shown on the accompanying map with minor differences.

Summary of verbal comments:

Albany Urban Renewal Agency (Dec. 10) - boundary should be extended westward within the City of Albany to include points of higher elevation from which the river can be seen.

Albany County Planning Board (Oct. 22) - no objections

Rensselaer County Bureau of Planning (Dec. 15) - appears to be a reasonable boundary for management purposes.

Troy Bureau of Planning and Community Development (Dec. 15) - as previously arranged, CDRPC's and TBPCD's coastal zone boundaries coincide within the City of Troy and are satisfactory.

NYS Division of State Planning (Dec. 22) - boundary appears satisfactory; coordination with Columbia County recommended.

U.S. Soil Conservation Service (Mar. 2, 1976) - boundary of study area should be expanded to include those areas with unstable soil conditions immediately adjacent to the coastal zone. Development in these areas could have impacts on lands in the management area. The area between the small dashed line on the accompanying map will be mapped for soil conditions by CDRPC and SCS during the second phase of the program. Any modification to the boundary based on this analysis will occur at that time.

Summary of written comments:

USDA Soil Conservation Service (Nov. 7) - no particular comments, boundary satisfactory

Albany City Planning Board (Oct. 17) - boundary should be moved closer to river within the City of Albany; the South End and Pearl Street areas are not river-related and the recommendation is to limit the coastal zone in the City to the Port of Albany and the lands east of I-787.

N.Y.S. Cooperative Extension (Oct. 20) - boundaries acceptable as delineated, compatibility with Hudson River Valley Commission boundary is good.

Hudson River Valley Commission (Dec. 4) - boundary satisfactory, sent 1971 proposed revision to HRVC boundaries for information.

It is evident that many factors were considered in the preparation of a coastal zone boundary for the Capital District. In many areas, it was possible to choose a meaningful natural feature as a boundary segment which coincided with a feature "on the ground" such as a road or railroad. In those areas where no man-made feature existed, political boundaries or straight lines were used to facilitate demarcation but only if such lines were meaningful in terms of physical features. It is necessary to bear in mind that this is a preliminary boundary subject to change based on further analysis.

5. GOVERNMENTAL CONTROLS AND REGULATIONS AFFECTING THE COASTAL ZONE

The section contains a detailed description and analysis of the local zoning ordinances of communities within the coastal zone. This analysis provides the basis for determining, during the second phase, the utility of these local land-use controls as a coastal zone management tool. County, State, and Federal jurisdictions and regulations impinging on this area's coastal zone will also be reviewed.

Analysis of Existing Local Zoning Ordinance

Critical to the development of a plan is the analysis of existing land use controls and zoning ordinances. The zoning ordinance, by definition, represents what the community believes to be the most valid use of the land. These regulations must be given substantial consideration by those engaged in the process of plan generation.

ZONING ANALYSIS: METHOD

One element in the preparation of CDRPC's Preliminary Regional Development Plan was the analysis of local zoning policies in the Capital District. Two composite zoning maps were prepared from information supplied by each municipality: one illustrating residential zoning and the other depicting non-residential zoning. Because of the wide variety of allowable development types and densities, CDRPC created a uniform system of classifying zoning ordinances to facilitate meaningful comparisons between the Region's seventy-seven municipalities. Fourteen classes of residential density were created on the basis of allowable acres per dwelling unit (Table I):

TABLE 4

CDRPC RESIDENTIAL ZONING CLASSIFICATION

Class	Acres Per Dwelling Unit	Class	Acres Per Dwelling Unit
1	10.0 - 25.0	8	0.17 - 0.25
2	5.0 - 10.0	9	0.10 - 0.17
3	2.5 - 5.0	10	0.07 - 0.10
4	1.0 - 2.5	11	0.04 - 0.07
5	0.67 - 1.0	12	0.02 - 0.04
6	0.40 - 0.67	13	0.01 - 0.02
7	0.25 - 0.40	14	Less than 0.01

Non -residential zoning was classified on a strictly nominal basis as a result of examining the types of permitted land uses within a particular zone.

For the CZM study, the most recent zoning information available was obtained from local and county sources and a composite zoning map for the planning area was prepared at the scale of 1:24,000. Quantification of each zone in each community was deemed essential to the analysis of local zoning and a one hectare [(100M (328 feet) by 100M (328 feet)] grid was overlain on the zoning map for this purpose and also to determine the total area of each community within the planning boundary.

After the quanitification process was completed, the number of zoning classes for each community ranged from zero (some municipalities have no zoning ordinances) to seventeen. To further facilitate comparisons between coastal zone communities, all zones were combined into seven categories: rural residential (more than 1.0 acres per dwelling unit), low density residential (0.25 - 1.0 acres per dwelling unit), medium to high density residential (less than 0.25 acres per dwelling unit), commercial, industrial, land conservation, and miscellaneous (i.e., acreas not zoned, combinations of the above classes, etc.).

ZONING ANALYSIS: RESULTS

The easiest way to present and discuss the current zoning situation in the Capital District's coastal zone is as follows: (1) presentation of numerical information in tabular form by county and community; (2) discussion of the characteristics of each community's zoning in the planning area; (3) discussion of zoning in the entire coastal zone.

Table 5 presents the area of each zone by municipality in Albany County's coastal zone in hectares and acres (1 hectare = 2.47 acres) and Table 6 depicts the proportion of each zoning type.

TABLE 5
LOCAL ZONING IN ALBANY COUNTY'S COASTAL ZONE

Municipality and Year of Ordinance	Rural Res.	Low-Dens. Res.	Med.&Hi-Dens.Res.	Comm.	Indust.	Land Cons.	Misc.	Total
Albany (Hectares)	-	-	361	174	434	-	17[1]	986
1968 (Acres)	-	-	892	430	1071	-	42[1]	2435
Bethlehem	-	-	557	7	551	-	643[2]	1758
1972	-	-	1376	17	1361	-	1588[2]	4342
Coeymans	-	489	40	6	279	45	-	859
1961	-	1208	99	15	689	111	-	2122
Colonie	-	17	112	10	168	-	32[3]	339
1972	-	42	227	25	414	-	79[3]	837
Green I.	-	-	-	-	-	-	79[1]	79
-	-	-	-	-	-	-	195[1]	195
Menands	-	-	178	49	317	40	-	584
1970	-	-	440	121	782	99	-	1442
Ravena	-	-	63	6	13	28	-	110
1961	-	-	156	15	32	69	-	272
Watervliet	-	-	180	13	64	-	-	257
1964	-	-	444	33	158	-	-	635
Total	-	506	1491	293	1826	85	771	4972
	-	1250	3684	725	4507	210	1904	12281

1/ Not Zoned
2/ Special Permit Area
3/ Undeveloped

TABLE 6

ZONING BY PERCENT OF TOTAL COASTAL ZONE PLANNING AREA

IN ALBANY COUNTY

Municipality	RR	LDR	M & HDR	C	I	LC	MISC
Albany	-	-	36.61	17.65	44.02	-	1.72
Bethlehem	-	-	31.68	0.40	31.34	-	36.58
Coeymans	-	56.93	4.66	0.70	32.48	5.24	-
Colonie	-	5.01	33.04	2.95	49.56	-	9.44
Green I.	-	-	-	-	-	-	100.00
Menands	-	-	30.48	8.39	54.28	6.85	-
Ravena	-	-	57.27	5.45	11.82	25.45	-
Watervliet	-	-	70.04	5.06	24.90	-	-
Total	-	10.18	29.99	5.33	36.73	2.27	15.51

Nearly one-half of the City of Albany's land in the planning area is zoned industrial, the majority of which is heavy industrial. The two major portions are located in the Port District and along the river between the Menands boundary and Livingston Avenue. Most of the area between these two parcels is zoned commercial. The land west of Pearl Street is predominantly zoned residential except for the Empire State Plaza/Twin Towers area (commercial) and Sheridan Hollow (light industrial).

Bethlehem's land in the planning area is almost evenly divided between residential, industrial, and miscellaneous zoning. Heavy industrial zoning occurs between the Penn Central railroad and the river, bounded on the north by the Normanskill and the south by Wheeler Road. Light industrial zoning is found west of Rte. 144 betwen the subdivision on Glenmont Road and the Vloman Kill. The miscellaneous area is a special permit district which allows a variety of uses on a case-by-case basis. This area is east of Rte. 144 to the river and bounded by Lincoln Drive on the north and the Coeymans boundary on the south. Most of the remaining land is zoned residential.

Over one-half of Coeymans' land in the planning area is zoned residential. The largest tracts of residentially-zoned land are between the Thruway and the river south of the Bethlehem boundary to approximately the Atlantic Cement conveyor, and the area surrounding Ravena including the hamlet of Coeymans. The majority of the remaining land is zoned industrial with heavy industrial between the river and Rte. 144 and light industrial west of the Thruway. Buffer zones surround the heavy industrial areas and the community facility area along the river near the County line.

Ravena's planning area is primarily zoned residential behind the commercial strip zone along Rte. 143. Green belts separate the commercial and residential zones in this

area and along the Thruway (the land west of the Thruway to the Penn Central railroad is zoned industrial). A large green belt is also located in the northeast corner of the village.

Colonie has very little land along the river; the small parcel is zoned undeveloped with commercial zoning between Rte. 32 and I787. One-half of the land in the planning area is zoned industrial with residential zoning in strips along the Watervliet boundary and in the Maplewood area. The Village of Green Island has no zoning ordinance.

Over one-half of Menands in the planning area is zoned industrial, primarily between Rte. 32 and the river. Commercial and light industrial zoning is predominant along Rte. 32 and the balance of the land west of Rte. 32 is zoned residential. The area of St. Agnes Cemetery is zoned land conservation. The majority of the City of Watervliet is zoned residential with the major industrial zones near the Arsenal and the Norton facility.

Over one-third of Albany County's land in the planning area is zoned industrial and nearly the same amount is residential. Most of the industrial zoning directly on the river is north of Wheeler Road in Bethlehem and the remaining land is primarily residentially zoned or in the special permit area. Rural residential zoning densities are non-existant and land conservation areas represent only a small portion of the total planning area in the County.

The zoning patterns in Rensselaer County's coastal zone are less complex than in Albany County. Table 7 presents the area of each zone by municipality in Rensselaer County along with zone totals for the entire planning area and Table 8 depicts the proportion of each zoning type. The Village of Castleton has no zoning ordinance. However, a small portion of the village along its northern boundary is zoned industrial by the Town of Schodack. The majority of the planning area in Schodack is zoned rural residential with a small industrial and commercial area near the confluence of Papscanee Creek and the Hudson River and a proposed historic district in Schodack Landing.

In contrast, most of East Greenbush's land in the planning area is zoned light industrial between the river and Rte. 9J and in the area of the Sterling-Winthrop research facility. The remaining one-quarter is zoned commercial and residential along Rtes. 9 and 20. However, virtually all of North Greenbush is zoned low-density residential with a small light industrial area between I90 and the boundaries with East Greenbush and Rensselaer.

One-half of the City of Rensselaer is zoned residential. This includes most of the City north of Rtes. 9 and 20 and east of Broadway. The industrial areas are primarily south of Broadway between the river and Rte. 9J to the East Greenbush boundary. Special areas include the Rensselaer High School north of the Dunn Memorial Bridge and the historic district surrounding Fort Crailo.

Most of the City of Troy's land in the planning area is zoned residential. Industrial areas are located along the river between the North Greenbush boundary and Liberty Street and between the Green Island Bridge and the Federal Dam. A large commercial tract is located between the Congress Street and Green Island bridges and includes the Uncle Sam Mall site.

TABLE 7

LOCAL ZONING IN RENSSELAER COUNTY'S COASTAL ZONE
AND THE CAPITAL DISTRICT CZM PLANNING AREA

Municipality and Year of Ordinance	Rural Res.	Low-Dens. Res.	Med. & Hi-Dens.Res.	Comm.	Indust.	Land Cons.	Misc.	Total
Castleton (Hectares)	-	-	-	-	-	-	206[1]	206
- (Acres)	-	-	-	-	-	-	509[1]	509
E. Greenbush	-	130	134	22	765	-	-	1051
1975	-	321	331	54	1890	-	-	2596
N. Greenbush	-	593	9	13	56	-	-	671
1971	-	1465	22	32	138	-	-	1657
Rensselaer	-	-	417	45	216	38[2]	27[3]	743
1973	-	-	1031	110	533	94[2]	67[3]	1835
Schodack	1702	41	-	16	47[4]	-	-	1806
1971	4204	101	-	40	116[4]	-	-	4461
Troy	-	-	833	99	94	-	45[5]	1071
1966	-	-	2057	245	232	-	111[5]	2645
Total	1702	764	1373	221	1152	38	278	5548
	4204	1887	3441	546	2845	94	687	13704
Planning Area	1702	1270	2884	460	3004	151	1049	10520
	4204	3137	7125	1138	7416	373	2591	25985

1 Not Zoned

2 Includes Historic District

3 School

4 Includes part of Castleton zoned by Schodack

5 Combined Commercial and Industrial

TABLE 8

ZONING BY PERCENT OF TOTAL COASTAL ZONE PLANNING AREA

IN RENSSELAER COUNTY AND THE CAPITAL DISTRICT

Municipality	Rural Res.	Low-Dens. Res.	Med.& Hi-Dens. Res.	Comm.	Indust.	Land Cons.	Misc.
Castleton	-	-	-	-	-	-	100.00
E. Greenbush	-	12.37	12.75	2.09	72.79	-	-
N. Greenbush	-	88.38	1.34	1.94	8.35	-	-
Rensselaer	-	-	56.12	6.06	29.07	5.11	3.63
Schodack	94.24	2.27	-	0.89	2.60	-	-
Troy	-	-	77.78	9.24	8.78	-	4.20
Total	30.68	13.77	25.16	3.98	20.76	0.68	5.01
Planning Area	16.18	12.07	27.41	4.37	28.56	1.43	9.97

Residential zoning accounts for two-thirds of the land in Rensselaer County's planning area. One-third of the total land is zoned rural residential land and is located in Schodack; the low-density residential land is in the Greenbushes, and the high-density residential areas are located in the cities of Rensselaer and Troy. Industrial zoning represents one-fifth of the land; the largest industrial tracts are located directly along the river in East Greenbush, Rensselaer and Troy. Virtually no land other than Rensselaer's historic district can be considered as being zoned for land conservation.

Approximately equal proportions of low-density residential, medium and high-density residential, and industrially zoned land comprise the majority of the land in the Capital District's Coastal Zone Management planning area. Generally, there are few abrupt changes in permitted uses between municipalities. The industrial and commercial zones are located in or near the major urban concentrations and directly along the river and the major arterials. The higher residential densities are allowed in the cities with lower densities allowed in the suburban towns although the only rural residential zone is located in Schodack in Rensselaer County. Permitted uses on parallel sides of the river seem compatible although a heavy industrial zone in Menands faces a low-density residential zone in North Greenbush and a heavy industrial zone in Coeymans parallels a rural residential zone in Schodack. Two municipalities (Green Island and Castleton) have no zoning ordinances.

Most of the industrial zones in the cities presently contain small amounts of actual industrial land use. Only in the three cities (Albany, Troy, and Watervliet) does industrial acreage approach the amount of land zoned for industrial uses. A similar situation exists with regard to residential land use except that the zones in the cities are virtually "full". Approximately one-half of the commercial zones in the entire coastal zone contain commercial acreage.

Thus, the existing zoning situation in the Capital District's coastal zone presents few potential conflicts or inconsistencies in a strictly zoning context. Land suitability for various types of development may not always be consistent with local zoning and development policies. Areas of environmental concern and development potential, and the respective capacity of each community's land in the coastal zone will be the subject of the next section.

Existing Local Master Plans

As with local zoning information, local master plans were obtained from local and county sources and a composite zoning map for the planning area was prepared at the scale of 1:24,000. Of the fourteen coastal zone communities, Green Island, Watervliet, and Menands have no master plans. Of the remaining eleven, virtually all of the local planning boards have adopted the plans as policy documents, but virtually none of the plans are considered policy documents by the local legislative bodies. As a result of this factor, local master plans did not play a major role in the first phase of the CZM program in the Capital District. However, in the second phase of the program where plan alternatives are generated, local master plans will be given the utmost consideration.

Highway Regulations and Jurisdictions

In Albany County, there are no county highways within the coastal zone boundary. There are a number of county highways in Rensselaer County's coastal zone, as listed below by the municipality in which it is located:

TABLE 9: RENSSELAER COUNTY HIGHWAYS IN THE COASTAL ZONE

Municipality	Rensselaer County Highway Number and Name
East Greenbush	58 - Hayes Road
Schodack	8 - Stony Point Road 6 - Maple Hill Road 4 - Van Housen Road 1 - Muitzekill Road 2 - Schodack Landing Road

The Rensselaer County Highway Department is responsible for maintenance of these roads. The County has the authority to review zoning changes and variances within 500 feet of County roads under Section 239 of the General Municipal Law.

Federal and State Highways are under the jurisdiction of NYS Department of Transportation. Significant amounts of land in the form of expressway rights-of-way and adjacent areas in the coastal zone are owned by New York State. NYS DOT has limited authority over public and private land use in the vicinity of interchanges of limited access expressways and on at-grade state highways through its power to regulate the number and location of road cuts (entrances to public roadway) in these areas. The following are State and Federal highways within the coastal zone.

TABLE 10: STATE AND FEDERAL HIGHWAYS IN THE CAPITAL DISTRICT'S COASTAL ZONE

Highway Type	Location	Highway Number
Federal	Albany County	I-787
		I-90
	Rensselaer County	I-90
State	Colonie	32
	Watervliet	7, 32, 155
	Menands	378
	Albany	32, 144
	Bethlehem	32, 144
	Coeymans	143,144
	Troy	2, 4, 7
	Rensselaer	9J, 9/20, 43, 151
	East Greenbush	9J
	Schodack	9J
	Castleton	9J, 150

NYS Regulations

The Hudson River Valley Commission, formed in 1966, is committed to the achievement of an environment in which both natural and man-made components are sympathetically related. These goals were to be attained through both comprehensive planning for the River corridor and specific project review, but because of shifts in state-wide priorities and concerns the Commission's staff and function has recently been reduced to a very limited

project review. The Coastal Zone Management Program in the Hudson River area is oriented toward similar goals. By drawing from HRVC's earlier work and continuing to work with CDRPC, the Commission can carry out much of its unfinished long-range planning and implementation ideas.

The Freshwater Wetlands Act of 1975 (at present awaiting adoption of interim rules and regulations) will give the state permit authority over activities on wetlands of 12.4 acres (5 hectares) or larger and on lands within 100 feet of the vegetative boundary of each wetland. The Act requires a state-wide inventory and mapping of wetlands upon which permit authority will be based. The regulated activities include: any form of drawing, dredging, or excavation; removal of soil, mud, sand, shells, gravel, or other aggregate; any form of dumping, filling or depositing of soil, stones, sand, gravel, mud, rubbish, or fill of any kind; erecting any structures, roads, the driving of piles, or placing of any obstruction; any form of activity causing pollution including installing septic tanks or sewer outfalls, and discharging sewage treatment effluent or other liquid wastes; and any other activity which may impair the functions served by wetlands or the benefit derived from them. Wetlands, of course, are significant features to be preserved in the coastal zone. The freshwater wetlands regulations will probably be one of the most important tools to be utilized in coastal zone management in this Region.

The State Environmental Quality Review Act (SEQR) requires that all regulatory agencies within the State give major consideration to preventing environmental damage when the activities of a regulatory agency or the activities of individuals or corporations under the jurisdiction of a regulatory agency are found to affect environmental quality. For such activities, all State and local agencies, including departments, boards, public benefit corporations, public authorities, commissions, districts, and governing bodies are to prepare "environmental impact statements". The draft statement is circulated for review and comment among concerned parties, a public hearing may be held, and the final statement incorporating all comments is filed with N.Y.S. DEC. The purpose of SEQR is not to directly halt proposed actions, even if there is potential environmental harm, but to call attention to the environmental issues and bring them to the public at an early stage for consideration and discussion. This legislation, along with the Freshwater Wetlands Act, will play a major role in the management of land use in the coastal zone.

Federal Programs

The Coastal Zone Management Act of 1972, Section 307 requires that there be interagency coordination and cooperation between a state's coastal zone management program and any programs under the Federal Water Pollution Control Act or the Clean Air Act. In early 1975, an agreement between the U.S. Department of Housing and Urban Development and the Department of Commerce was reached to coordinate the HUD 701 Comprehensive Planning Program and the Coastal Zone Management Program. A similar memorandum of understanding has been executed between the Commerce Department and the Environmental Protection Agency to coordinate CZM programs with EPA's environmental quality programs. CDRPC has been involved in 701 planning since 1967 to certify the Region for capital grant eligibility for open space and recreation, sewer and water, and transportation projects as well as to prepare a regional development plan. CDRPC will participate in the Air Quality Maintenance Area Program commencing with air emissions inventory in the summer of 1976 for the Region (including the coastal zone) and expects to participate in the Areawide Water Quality Management Program (Section 208). Official sanction of the comprehensive and coordinative planning efforts regional planning bodies attempt to bring to each separate project can only increase the effectiveness of all of these programs individually and together.

The National Flood Insurance Program of the U.S. Department of Housing and Urban Development (for which all Capital District communities in the coastal zone are eligible and have qualified for participation) requires that participants enact and enforce ordinances that will restrict construction of new buildings in flood hazard areas. The participation level has been high across the country; a major reason for this is that non-participating eligible communities face denial of both Federal financial assistance for acquisition or construction purposes and Federally-related financing by private lending institutions for projects located in flood-prone areas. The program has significant land use control impact in this area's coastal zone which contains the major flood prone areas delineated by HUD for the communities along the Hudson. Its land use objectives are:

1) restrict the development of land exposed to flood damage, where appropriate;
2) guide the development of proposed construction away from areas threatened by flood hazards;
3) assist in reducing damage caused by floods;
4) otherwise improve the long range management and use of flood-prone areas.

The land use regulations required by the National Flood Insurance Program are highly compatible with the land use objectives of coastal zone management.

Flooding along the Hudson River in the Capital District was a severe problem at one time. Most floods were the result of ice jamming. The construction of several reservoir dams in the Upper Hudson Basin had incidental flood-control benefits downstream. The flood of record for the Capital District's Coastal Zone was March, 1936 at 215,000 cfs at the Green Island gage (mean annual flood is 99,000 cfs). Virtually all of the shoreline of the Hudson River in Albany and Rensselaer Counties was diked by the late 1930's, thus further reducing potential flood damage.

It is evident from this section that the coastal zone communities are subject to a number of regulatory programs both locally-initiated and mandated by state and federal governments. The programs cover a broad range of activities from the issuance of a building permit through land use controls which are designed to meet the specific needs of the community to controls which are designed to promote statewide and nationwide conformity and consistency. It is desirable that coastal zone management in these communities can be implemented through these existing mechanisms.

6. GEOGRAPHIC AREAS OF PARTICULAR CONCERN AND AREAS OF DEVELOPMENT POTENTIAL

One of the key elements in the planning process is the examination of land characteristics: existing land use and the suitability of vacant land or lands in other uses for future development. An examination of existing land use yields explanations of growth patterns up to the present time and land suitability analysis offers a guide to where future development should occur. This section contains three components (Figure 4): (a) an analysis of developed lands in the coastal zone; (b) a description of the "vacant" land in the coastal zone and its suitability for future development; (c) an examination of the population capacity based on current zoning ordinances of those vacant lands in the coastal zone which are suitable for future urban development.

A. EXISTING LAND USE

As part of its research for the preparation of the Preliminary Regional Development Plan, CDRPC created a land use data base for the Capital District Region. Land use information was obtained from a variety of sources during the summer of 1973: local and county land use files, the LUNR Inventory, low altitude aerial photography, high-altitude U2 imagery, and field research. This information was mapped at the scale of 1:24,000 on the sixty-two USGS quadrangles which lie partially or wholly within the Region.

This data base was used for the preliminary preparation of the land use map of the Capital District's coastal zone. Six quadrangles comprise the CZM planning area: Ravena, East Greenbush, Albany, Delmar, Troy North, and Troy South. Land use information was transferred from CDRPC's data file to composite base map of 1:24,000 scale. Because of the relatively small size of the planning area, it was possible to field survey the entire area under consideration. This task was accomplished in late June and early July of 1975. Additional information at a larger scale for Troy was obtained from the Department of Planning and Community Development of the City.

To facilitate meaningful comparison of land uses between coastal zone communities, the land use information was quantified by using a one hectare [100 meter (328 feet) by 100 meter (328 feet)] grid. Tables 11 and 12 present the results of the quantification process for Albany County's urban-type land use in the coastal zone planning area. Residential land use is the predominant type followed by industrial uses, institutional, cemeteries and recreation, and commercial. As expected, the high density residential areas are found primarily in the cities and villages and low density residential areas are predominant in the towns. Industrial facilities are found in almost every municipality but are clustered in three general areas: Colonie/Watervliet/Green Island (i.e., Ford Motor Company, Norton, Allegheny-Ludlum, and the Arsenal); Port District (grain storage, tank farms, and the Niagara-Mohawk facility in Glenmont), and Coeymans (Powell-Minnock brickyards). Most of the commercial areas are located in the cities and villages and along the highways in the towns. The major transportation facility is the D & H shops in Colonie. Collectively, urban-type land uses comprise one-third of all the land in the Albany County planning area and, as expected, the largest tracts of undeveloped land are in the towns.

A similar spatial pattern of land use exists in Rensselaer County's coastal zone but greater variations in quantities of land use also occur as illustrated in Tables 13 and 14. Again, residential land uses are the most prevalent followed

FIGURE 4

ANALYSIS OF LAND CHARACTERISTICS IN
THE CAPITAL DISTRICT'S COASTAL ZONE

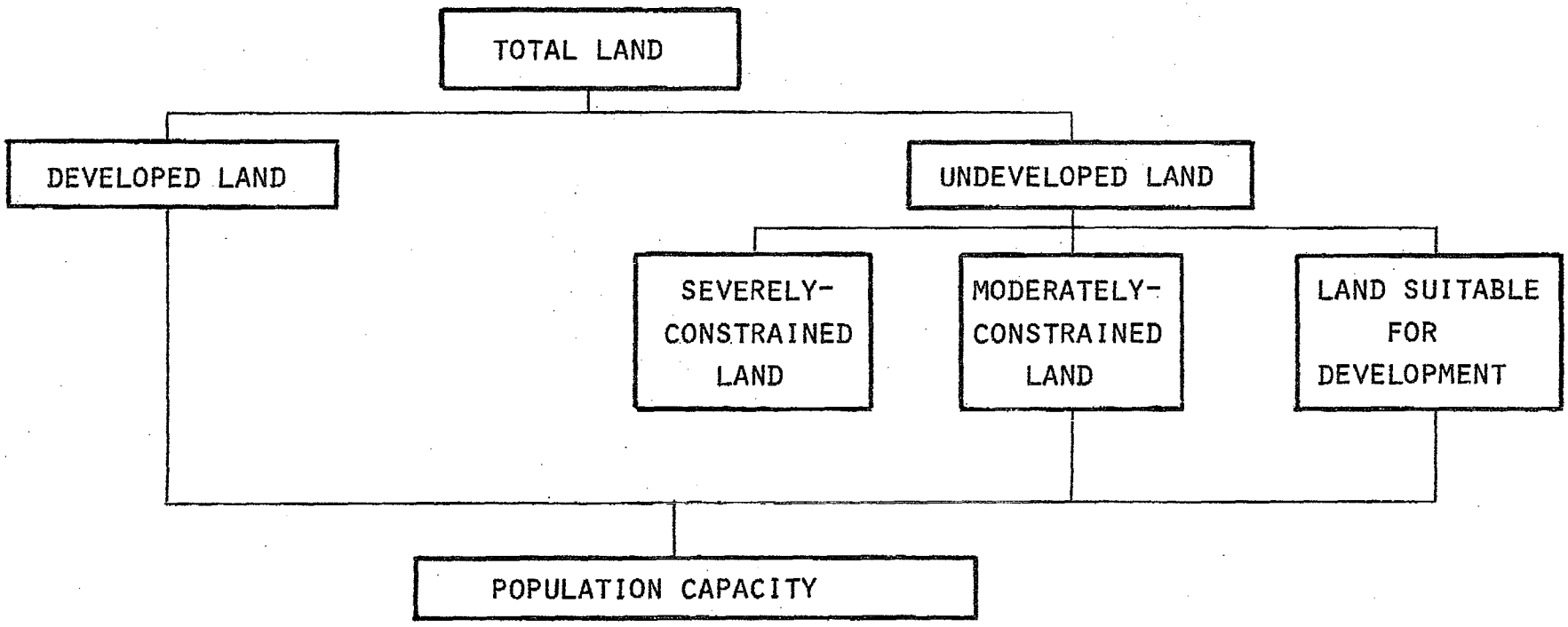


TABLE 11

URBAN LAND USES IN ALBANY COUNTY'S COASTAL ZONE

Municipality	Low & Med.Dens. Resid.	High-Dens. Resid.	Instit.	Comm.	Shopping Center	Manuf.	Non-Manuf.	Landfill & Extract.	Transp.	Cem. & Recreat.	Balance	Total Land
Albany (Hectares)	27	155	130	70	-	35	146	-	4	55	364	986
(Acres)	67	383	321	173	-	86	361	-	10	136	898	2435
Bethlehem	68	-	21	11	-	47	47	-	-	12	1552	1758
	168	-	52	27	-	116	116	-	-	30	3833	4342
Coeymans	23	3	6	3	-	20	-	36	-	7	761	859
	57	7	15	7	-	49	-	89	-	17	1880	2122
Colonie	28	52	2	4	-	67	7	2	48	26	103	339
	69	128	5	10	-	165	17	5	119	64	254	837
Green I.	-	23	4	1	-	19	14	-	-	8	10	79
	-	57	10	2	-	47	35	-	-	20	25	195
Menands	78	31	52	29	27	20	40	-	-	52	255	584
	193	77	128	72	67	49	99	-	-	128	629	1442
Ravena	20	1	3	2	-	-	-	-	-	-	84	110
	49	2	7	5	-	-	-	-	-	-	209	272
Watervliet	5	164	15	9	-	53	3	-	-	8	-	257
	12	405	37	22	-	131	7	-	-	20	-	635
Total	249	429	233	129	27	261	257	38	52	168	3129	4972
	615	1060	576	319	67	645	635	94	129	415	7704	12281

- Less than 1 hectare.

TABLE 12

PROPORTIONS OF URBAN LAND USES IN ALBANY COUNTY'S COASTAL ZONE

Municipality	Low & Med. Dens. Resid.	High-Dens. Resid.	Instit.	Comm.	Shopping Center	Manuf.	Non-Manuf.	Landfill & Extract.	Transp.	Cem. & Recreat.	Balance
Albany	2.74	15.72	13.18	7.10	-	3.55	14.81	-	0.41	5.58	36.92
Bethlehem	3.87	-	1.19	0.63	-	2.67	2.67	-	-	0.68	88.28
Coeymans	2.68	0.35	0.70	0.35	-	2.33	-	4.19	-	0.81	88.59
Colonie	8.26	15.34	0.59	1.18	-	19.76	2.06	0.59	14.16	7.67	30.38
Green I.	-	29.11	5.06	1.27	-	24.05	17.72	-	-	10.13	12.66
Menands	13.36	5.31	8.90	4.97	4.62	3.42	6.85	-	-	8.90	43.66
Ravena	18.18	0.91	2.73	1.82	-	-	-	-	-	-	76.36
Watervliet	1.95	63.81	5.84	3.50	-	20.62	1.17	-	-	3.11	-
Total	5.01	8.63	4.69	2.59	0.54	5.25	5.17	0.76	1.05	3.38	62.73

- Less than 0.01 percent

TABLE 13

URBAN LAND USES IN RENSSELAER COUNTY'S COASTAL ZONE
AND THE ENTIRE CZM PLANNING AREA

Municipality	Low & Med. Dens. Res.	High-Dens. Resid.	Instit.	Comm.	Shopping Center	Manuf.	Non-Manuf.	Landfill & Extract.	Transp.	Cem. & Recreat.	Balance	Total Land
Castleton (Hectares)	36	-	14	1	-	21	-	-	-	-	162	234
(Acres)	89	-	35	2	-	52	-	-	-	-	400	578
E. Greenbush	70	4	2	3	3	-	88	26	-	10	845	1051
	173	10	5	7	7	-	217	64	-	25	2087	2596
N. Greenbush	7	-	18	1	-	-	1	9	-	-	635	671
	17	-	44	2	-	-	2	22	-	-	1568	1657
Rensselaer	29	116	30	18	-	43	69	11	4	4	419	743
	72	287	74	44	-	106	170	27	10	10	1035	1835
Schodack	26	-	2	2	-	-	-	-	4	1	1743	1776
	64	-	5	5	-	-	-	-	10	2	4305	4392
Troy	102	128	117	25	3	27	37	6	5	118	503	1071
	252	316	289	62	7	67	91	15	12	291	1242	2645
Total	270	248	183	50	6	91	195	52	13	133	4307	5548
	667	613	452	124	14	225	482	128	32	329	10638	13704
Planning Area	519	677	416	179	33	352	452	90	65	301	7436	10520
	1282	1673	1028	443	81	870	1117	222	161	744	18342	25985

- Less than 1 hectare.

TABLE 14

PROPORTIONS OF URBAN LAND USES IN RENSSELAER COUNTY'S COASTAL ZONE
AND THE ENTIRE CZM PLANNING AREA

Municipality	Low & Med. Dens. Resid.	High-Dens. Resid.	Instit.	Comm.	Shopping Center	Manuf.	Non-Manuf.	Landfill & Extract.	Transp.	Cem. & Recreat.	Balance
Castleton	15.38	-	5.98	0.43	-	8.97	-	-	-	-	69.23
E. Greenbush	6.66	0.38	0.19	0.29	0.29	-	8.37	2.47	-	0.95	80.40
N. Greenbush	1.04	-	2.68	0.15	-	-	0.15	1.34	-	-	94.63
Rensselaer	3.90	15.61	4.04	2.42	-	5.79	9.29	1.48	0.54	0.54	56.39
Schodack	1.46	-	0.11	0.11	-	-	-	-	0.22	0.06	98.03
Troy	9.52	11.95	10.92	2.33	0.28	2.52	3.45	0.56	0.47	11.02	46.97
Total	4.87	4.47	3.30	0.90	0.11	1.64	3.51	0.94	0.23	2.40	77.63
Planning Area	4.93	6.44	3.95	1.70	0.31	3.35	4.30	0.86	0.62	2.86	70.68

- Less than 0.01 percent

(with a much larger margin than in Albany County) by industrial uses. However, institutional and recreational land uses are more prevalent in Rensselaer County while commercial and transportation uses are less frequently encountered. Most of the high density residential land is found in the two cities but low-density residential areas are not confined to the towns as in Albany County's planning area, but are found in the cities and village as well. Industrial areas are not found in each community but are clustered along the riverfronts in Troy and Rensselaer/East Greenbush (Sterling-Winthrop, GAF, and tank farms), and east of Route 95 in Castleton (Brown Paper). The largest institutional (RPI and Hudson Valley Community College) and recreational (Prospect and Frear Parks) lands are found in Troy. The towns contain the largest undeveloped areas as in Albany County's coastal zone but larger proportions of the urban areas are undeveloped than in Albany County. This is in part due to the presence of steeper slopes and larger amounts of poorly-drained land in Rensselaer County, a partial explanation of the fact that only one-fifth of Rensselaer County's coastal zone is developed.

To summarize, the Capital District's coastal land uses are predominantly residential and industrial in character. Most of the residential land is found in older urban areas. Approximately forty percent of the industrial land use is directly related to the use of the river. An important proportion of the institutional land use is related to the treatment and discharge of municipal sewage (five treatment plants with a capacity of 83.82 million gallons per day). Finally, most of the recreational (a very small percentage of the total land in the planning area) not located directly on the river nor uses it as a recreational resource.

B. LAND SUITABILITY

Recalling Table 14, nearly seventy-one percent of the land in the coastal zone planning area is vacant or in non-urban uses. All land is capable of being developed to some extent but not necessarily for urban uses. Some of the coastal land is completely unsuitable for urban development, some requires various degrees of modification in order to be suitable, and some is relatively unconstrained. Determining the degree of suitability is a complex problem, but one for which a reasonable solution exists.

CDRPC developed a method for assessing land suitability for future development.[1/] The method essentially involves the use of a series of map overlays, each illustrating one or more development factors. In this way, a particular area can be depicted and analyzed in terms of a number of land characteristics: developed land, land severely constrained for future development, land moderately constrained for future development, and land suitable for future development. This method served as a basis for determining the suitability of land in the Capital District's coastal zone planning area for future development. The final product (accompanying this document) was a composite map at 1:24,000 scale which illustrates developed land, geographic areas of particular concern (lands with severe and moderate development constraints), and areas of development potential (lands relatively unconstrained).

1/ Methodology for the Preparation of Regional Development Plan Alternatives, Capital District Regional Planning Commission, June 1974, CDRPC Technical Report 100-1.

The foregoing method does not consider all possible factors in determining land suitability. As stated in Chapter 3, CDRPC does not have direct access to or the resources to generate detailed information concerning soil conditions, aquifer or aquifer recharge areas, rare or endangered plant communities, wildlife habitats, and valuable mineral deposits. Agencies such as the N.Y.S. Department of Environmental Conservation and the U.S. Soil Conservation Service will be providing more input to this process during the second phase of the program.

WATER BODIES AND USAGE

Water bodies merit special consideration as constraints to urban development. In the Capital District coastal zone, the Hudson River (the raison d'etre for a coastal zone management program in this Region) is the largest body of water. Although the main channel of the river remains open to navigation, a large amount of activity along the edge of the river has greatly modified the shoreline. Virtually the entire length of each shore in the planning area is diked or otherwise stabilized. Many "islands" such as Green, Cabbage, Schodack and Papscanee are now merely bulges in the shoreline as a result of natural sedimentation or man-generated landfill. Former river channels are now linear bodies of standing water.

One of the major uses of the Hudson River is the primary avenue of maritime commerce in Eastern New York. The major transportation corridors in New York State have long been situated along the rivers, and Hudson River traffic was an early impetus to Regional growth. Early difficulties with river transportation led to development of trans-shipment points such as Albany and Schenectady for transfer of passengers and cargo. The non-navigability of certain sections of the river was eliminated gradually through the construction of canal routes. Presently, the Capital District is a major center for movement and transfer of goods by waterway. At the juncture of the Erie and Champlain divisions of the Barge Canal and the Hudson River, Albany has maintained its shipping position over the years. The Port of Albany serves as a genuine coastal port, facilitated by the creation of a deep-water channel in the Hudson.

The Port of Albany functions as a major distribution and trans-shipment point, favorably located to serve industrial and commercial centers in New England and upstate New York. Rail connections with the Penn Central (Conrail) and with the Delaware and Hudson Railroad allow shipments of cargo discharged at the Port to numerous points in northeastern United States and eastern Canada. The deepwater port, served by a 32-foot deep channel in the Hudson, in combination with the extensive barge, rail and highway facilities, reinforces the Region's importance as a transportation center. Ships up to approximately 30,000 DWT are able to use the Port's facilities; vessels with a draft deeper than 32 feet make use of favorable tide conditions. Mean tide range at Albany is 4.6 feet.

A great variety of commerce currently moves through the Port of Albany, with bananas, grain, and molasses constituting much of the trade. Annual tonnage figures for throughput at the Port have fluctuat ed between 543,000 and 1,106,000 tons in the past five years. 687,000 tons of cargo were handled by the Port during 1975. These figures do not include the significant volume of petroleum products which are handled outside of the Port Commission facilities.

Figures published in connection with the Upstate Public Ports Study of the New York State Department of Transportation indicate that annual cost savings in excess of $2,500,000 annually are provided to shippers and consignees using the Port's services. Comparative cost advantages inherent in use of the Port of Albany over next-least-cost alternatives indicate similar, potential savings for trade that currently does not funnel through the Port. If the additional 500,000-800,000 tons of trade could be captured, the Port's annual deficit ($398,000 in 1975) could be reduced or eliminated.

An inventory performed for the Upstate Public Ports Study identified the following facilities at the Port:[2]

13,500,000 bushel capacity grain elevator
25 miles of rail facilities
43,200 square feet of covered lumber storage
250,000 barrel capacity asphalt terminal
17,000,000 gallon capacity molasses storage
2,000 ton per day capacity asphalt and aggregate plant
200,000 square foot rubber products warehouse
10-1/2 acres scrap iron yard

Limited additional facilities may be required for the identified future trade.

Aside from commerce, the river has also provided another necessary but also somewhat offensive use: the receiving stream for sewage from the industries and communities along its shore. For many years, the river was essentially an open sewer, virtually unfit for recreational use. Within the last ten years, a concentrated effort of pollution abatement has substantially improved water quality in the Hudson to the point where many species of fish are returning and recreational boating has "increased markedly". According to the N.Y.S. Department of Environmental Conservation, the Capital District water pollution abatement program is a fine testimony to a bi-partisan, multi-municipal, joint industrial cooperative venture. Local officials molded together a regional treatment plan on both sides of the river which serves a multitude of communities and industries in the true sense of regionalized wastewater treatment management. Plants designed in the mid-1960's have been on line for approximately two years in Albany County, while the Rensselaer County regional plant is nearing construction completion.

Water quality in the backyard of the state's capitol is beginning to reflect the improvements. Dissolved oxygen levels are definitely on the upswing, although occasional violation of standards are still observed. Ammonia levels are decreasing while nitrate concentrations increase. Decreases in BOD, which used to show unusually high winter seasonal levels, further substantiate the effectiveness of the highly efficient activated systems on line. Quality improvements from abatement progress on the upstream waters of the Mohawk and Upper Hudson Rivers have also contributed to improved quality of the lower river.

Water quality problems still exist with coliform organisms, ph enols, and occasionally, dissolved oxygen. Benthic macroinvertebrate communities some 15 miles below the Capital District reflected noticeable damage in 1973, resulting from impacts of organic material. However, conditions are expected to continue to improve as additional raw discharges are connected to the regional systems. Combined sewers are expected to impede progress to full restoration of water quality throughout this and other urban areas.[3]

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2 Harris, Frederick R., New York State Department of Transportation Upstate Ports Study, Phase II Initial Draft Report, New York, 1976, p.p. 56-58

3 New York State Department of Environmental Conservation Basin Summaries of 208 Study Needs (Draft), Number 13 (Lower Hudson River Basin Summary), 1976, p.13-4.

SEVERE DEVELOPMENT CONSTRAINTS

Related to water bodies are wetlands. These areas are found adjacent to bodies of water, in extremely flat areas, or in areas of internal drainage. Wetlands formerly were called swamps and an object of societal disdain; areas which bred mosquitoes and snakes and therefore should be drained in order to eliminate these pests. Recently, wetlands became increasingly recognized as valuable habitat for distinctive species of vegetation and wildlife, and are now protected by New York State law. Wetlands also absorb nutrients from the water and act as "sponges" in times of flood. Wetlands are absolutely essential to the preservation of the quality and character of the coastal zone and must be protected; they are therefore considered as severe development constraints.

Steep slopes present additional problems for development. Soils on steep slopes tend to be unstable and thus incapable of supporting even small structures. These soils are often poorly drained, and have rich runoff characteristics. Additional runoff generated by development on steep slopes may accelerate erosion and create substantial problems downslope and increase sedimentation in streams which receive the runoff.

Flood plains have traditionally provided a flat, workable surface upon which man has grown food, constructed transportation arteries, and built cities. Unfortunately, flood plains generally present an environmental hazard to man and property. The National Flood Insurance Program provides low-cost flood insurance to eligible communities in return for assurances that future development will be controlled within the flood plain. All of the communities in the Capital District coastal zone are eligible and have qualified for participation in the flood insurance program. The 100-year flood plain boundary as delineated by the U.S. Department of Housing and Urban Development serves as the flood plain boundary for this study and all undeveloped land within the flood plain is considered to be severely constrained for urban development. However, agriculture and outdoor recreation are suitable uses of the flood plain.

HISTORIC SITES

Historic sites within the coastal zone planning area present a unique constraint to urban development and comprise a major group of features to be preserved through the coastal zone management program as well as efforts of private and public organizations oriented specifically toward historic preservation activities.

"Historic Preservation" has become in recent years (both as a term and a concept) more broadly acceptable or at least understood by the public. Although they have not elicited broad-based sympathy, preservationists have established themselves as a vocal, growing minority. Part of the credit for this new exposure comes from the recent and current environmental movement. The need for historic preservation is an environmental concern in two ways: 1) it can be a form of conservation of

of resources -- historic, aesthetic and economic; 2) the results can clearly illustrate the sensitivity to the environment and natural materials of past designers and builders which we today have almost lost. The approach of the U.S. Bicentennial Celebration and its accompanying historic consciousness has also served to heighten awareness of the value of preservation of older buildings and sites.

Historic preservation can be viewed as a planning resource: a tool for conservation of resources and an illustrative guide. It can be approached as an aesthetic resource: the varied forms and styles of hundreds of years of hand-craftsmanship have a unique beauty and character not to be found in the clean lines of today's architecture. It can be an economic resource: restored historic areas can be popular tourist attractions; rehabilitation, restoration and adaptation of structurally-sound older buildings for housing, office, commercial and even industrial uses has been shown to be cheaper than new construction for those same purposes; in addition, the stability and prestige of an old, historic address (such as Beacon Hill in Boston) can be a strong selling point; the municipal tax base may be improved by the increase in land values following restoration of older buildings (at less proportional expense than with new construction) and by the return of affluent former city dwellers to a more attractive urban setting.

The Capital District portion of the Hudson Valley has a long history of human activity from the early Dutch settlements through the booming era of the industrial revolution to modern times. This is reflected in the wealth of buildings, monuments, and sites from the seventeenth century and onward. Some of these recall major events in history, others represent the common life style and architecture of their times. The majority of these historic resources are located close to the river and within the coastal zone planning area.

In the Coastal Zone Management Act of 1972, Congress declared that national policy is to encourage the preservation and enhancement of the Nation's coastal resources through development and implementation of management programs. Among these resources, historic considerations are specifically stated. One of the primary objectives of New York State's Coastal Zone Management Program, in seeking to achieve a balance between economic development and preservation of coastal resources, is that historic sites, districts and artifacts in the coastal zone be preserved, restored and maintained for public use and enjoyment. As subcontractor to New York State's CZMP, CDRPC recognizes the particular importance of historic resources in this Region and they are as a group a major determinant in the delineation of preservation areas and potential development sites.

Numerous inventories of historic resources have been conducted in this Region in recent years by both public and private organizations. Four major lists or surveys were examined which cover historic features of major significance, of local and community interest, and other perspectives such as industrial artifact preservation. These are:

1. National Register of Historic Places (U.S.Dept. of the Interior National Park Service, 1975)
2. Historic Resources of the Hudson (N.Y.S. Hudson River Valley Commission 1969)
3. Industrial Archeology (Hudson-Mohawk Industrial Gateway, 1973)
4. Historic Preservation Plan/Policy (Rensselaer County Planning Department, 1974)

The National Register is a constantly expanding list including Historical Units of the National Park System and National Landmarks as selected by the National Park Service. It also includes sites of state and local importance nominated by states according to comprehensive statewide historic preservation plans. National Register Criteria require that any districts, sites, buildings, structures, and objects being considered for nomination be significant in American history, architecture, archeology, and culture, and possess integrity of location, design, setting, materials, workmanship, feeling and association, and are (1) associated with significant historic events; or (2) associated with lives of significant persons in our past; or (3) representative of a type, period or method of construction, or representative of the work of a master, or in possession of high artistic value; or (4) capable of yielding or have already yielded information important in pre-history or history.

The Hudson River Valley Commission compiled the inventory Historic Resources of the Hudson to facilitate its project review activities and formulation of a comprehensive plan for the Hudson Valley. Its primary objective was broad comprehensiveness; not only prime sites of national, state and local importance, but also those of local and regional significance not warranting public ownership. The inventory is a compilation of local inventories conducted during 1967 with some reference to secondary sources. HRVC feels that the survey accurately represents the historic values of Hudson Valley citizens.

The Hudson-Mohawk Industrial Gateway is concerned with industries founded in the nineteenth century which are still in operation as well as nineteenth century industrial and industrially-oriented buildings and sites on both sides of the Hudson River in the cities and villages of Troy, Waterford, Cohoes, Green Island, and Watervliet. HMTG feels that the fullest future of the area rests in large measure on the successful restructuring of these historic industrial resources into the revitalized fabric of the urban environment. Industrial Archeology is a comprehensive inventory of nineteenth century industrial and industrially-oriented buildings and sites.

Rensselaer County Planning Department's Historic Preservation Plan/Policy states the county policy on historic preservation activity and surveys the programs and resources available to assist historic preservation efforts. It includes a broad inventory of historic sites and structures compiled from existing local inventories.

All National Register sites (including 1975 pending nominations) were listed and mapped at the scale of 1:24,000. The other three lists contained many areas of overlap but each contributed a number of structures and sites not duplicated in the other lists.

It is difficult to attribute priorities or levels of importance to each source of historic site information. The National Register listings are protected by the National Historic Preservation Act of 1966 which states that any action taken by a federal agency or any federally-assisted or licensed undertaking in any state must consider the effect of its actions on any district, site, building, structure or object that is included in the National Register. The process is similar to the filing of an environmental impact statement for federal and federally-assisted projects as mandated by NEPA. An adverse effect is defined as:

1) destruction or alteration of all or part of a property;
2) isolation from or alteration of its surrounding environment,
3) introduction of visible, audible, or atmospheric elements that are out of character with the property and its setting.

The process of nominations to the National Register is continuous. The order in which nominations are made is not necessarily by monetary importance or value of the site. Frequently, sites of only moderate historic value are nominated by a community to stall federal or federally funded actions while perhaps more interesting or worthy sites are not recognized because the immediate urgency is not there. Thus, the National Register is not a complete listing of the most significant sites. For the purposes of coastal zone management, all historic sites from all sources used are given equal value.

Most historic sites are contained within areas of substantial existing development and thus will not be among those lands subject to possible new development. Any historic sites outside substantially built-up areas were subsequently classified as severe development constraints to eliminate these sites from the category of "land suitable for development". Concentrations of historic structures and sites not already protected by National Register or Historic District designation may be classified as a coastal zone preservation area during this process.

The inventory compiled for this study is by no means an exhaustive list of all significant sites and buildings. Some of the important sites are:

NATIONAL REGISTER OF HISTORIC PLACES

Albany County

Albany:	1. Albany Academy (Joseph Henry Memorial)
	2. Albany City Hall
	3. Albany Union Station
	4. Cathedral of All Saints
	5. Cherry Hill
	6. Delaware & Hudson Railroad Company Building
	7. First Reformed Church
	8. First Trust Company Building
	9. New York Executive Mansion
	10. New York State Capitol
	11. New York State Court of Appeals (State Hall)
	12. New York State Department of Education Building
	13. Nut Grove
	14. Old Post Office
	15. Pastures Historic District
	16. Quackenbush House
	17. St. Peter's Church
	18. Schuyler, Philip, Mansion
	19. Ten Broeck Mansion
Bethlehem:	20. Bethlehem House (Rensselaer Nicoll House)
Coeymans:	21. Coeymans, Ariaanje House
	22. Coeymans School (Acton Civill Polytechnic Institute)
Green Island	23. Green Island Car Shops
Colonie:	24. Schuyler Flatts
Watervliet:	25. Watervliet Arsenal
	26. Watervliet Side Cut Locks (Double Lock)

Rensselaer County:

Rensselaer:
1. Aiken House
2. Fort Crailo

Troy:
3. Burden Iron Works, Office Building
4. Cannon Building
5. Church of the Holy Cross
6. Bussey, Esek, Firehouse
7. Fifth Avenue - Fulton Street Historic District
8. Troy Gas Light Co., Gasholder House
9. Glenwood (Titus Eddy Mansion)
10. Grand Street Historic District
11. Hart-Cluett Mansion
12. Iluim Building
13. McCarthy Building
14. National State Bank Building
15. Old Troy Hospital
16. Second Street Historic District
17. Troy Public Library
18. W. & L.E. Gurley Co.
19. Washington Park Historic District

NATIONAL REGISTER SITES PENDING

Albany County

Green Island:
1. St. Marks Church (Episcopal)

Albany:
2. Elk Street - Columbia Street Historic District
3. Cathedral of the Immaculate Conception
4. United Traction Office Building
5. Albany Institute of History and Art
6. Site of Fort Orange
7. Albany Hospital for Incurables

Rensselaer County

Schodack:
1. Schodack Landing Historic District

Troy:
2. First Street Historic District
3. St. Paul's Chapel and Church

N. Greenbush:
4. DeFreest-Jordan House

Troy:
5. River Street Historic District
6. Burden Upper Water Works

HUDSON RIVER VALLEY COMMISSION

Albany County

Albany:

1. New York State Armory
2. Apartment House, Marcus Reynolds Architect
3. Federal-style homes
4. Washington Avenue houses
5. State Street-Madison Avenue buildings
6. Federal-style Mansion Avenue
7. Site of Governor Daniel Tompkins Mansion
8. Swan Street buildings, Marcus Reynolds Architect
9. Melville House
10. Arbor Hill
11. Railroad YMCA
12. Public Service Mutual Building, Marcus Reynolds Architect
13. YMCA
14. Chamber of Commerce Building
15. John G. Myers Building
16. Old Day Line Building
17. Group of commercial buildings
18. Mechanics & Farmers Bank
19. National Commercial Bank
20. State Bank of Albany
21. Tavern
22. Knickerbocker Building
23. Madison Place house
24. Elm Street houses
25. Phillip Street houses
26. Grand Street houses
27. House at Trinity and Grove Streets
28. Westerlo Street houses
29. Trinity Place houses

29 A. Row houses

29 B. Site of 17th Century mills

30. Corning Hill area

HUDSON RIVER VALLEY COMM. (Cont.d)

Bethlehem:	31. Abbey Hotel Site
	32. Nott House
	33. Clapboard House with Tower
	34. Van Wies Point School
	35. Van Wies House
	36. Tavern
	37. Hendrick Van Wies House
	38. Site of 19th Century Ice House
	39. Erastus Dow Palmer farm
	40. Houses on Hudson
	41. Halfway House
	42. Town House
	43. Schoolhouse
	44. Barent-Winne Docks
	45. Winne House
	46. Pryor House
	47. Site of mills on Vlaumanskill
	48. Columned house
	49. Baker Farm
Coeymans:	50. Original Hamlet of Coeymans
	51. Blaisdell Farm
	52. Coeymans-Bronck House
Colonie:	53. Jermain House
	54. Doric portico Mansion
	55. Albany Felt Company

Rensselaer County

Troy:	1. Bank Row
	2. 49 Second Street (Phi Kappa Phi House)
	3. Vail House
	4. Congress Street Square Houses
	5. Frear Mansion
	6. First Church of Christ Scientist
	7. White and Hunt Dormitories
N. Greenbush:	8. Brick Farmhouse
Rensselaer:	9. Beverwyck (St. Anthony's Seminary)
Troy:	9 A. Fifth Avenue Houses
E. Greenbush:	10. Italian Villa (Levinger)
	11. Italian Villa (McCabe)
	12. Brick House
	13. Genet Schoolhouse

HUDSON RIVER VALLEY COMM. (Cont.d)

Schodack:
14. Ten Eyck House
15. Gambrel-roof house
16. Genet Staats House
17. Barent Staats House
18. John A. Becker House
19. Federal-style Farmhouse

Castleton-on-Hudson
20. Stepped gable house
21. Group of stepped gable houses

HUDSON MOHAWK INDUSTRIAL GATEWAY

Rensselaer County

Troy:
1. Troy-Menands Bridge
2. Albany Iron Works
3. Ruscher Brewery
4. United Waste Manufacturing Co.
5. Fuller, Warren & Co.
6. Rensselaer Iron Works
7. Jason C. Osgood Steam Fire Engine Co. No. 3
8. Stone Arch Bridge
9. Empire Foundry
10. Jonas $. Heartt and Co.
11. Mahoney Architectural Iron Works
12. New York Central Freight House
13. International Shirt & Collar Co.
14. Marshall Mills
15. River Street Warehouses
16. Troy Dock
17. Green Building
18. Marvin Neitzel
19. Dennin Building
20. Green Island Bridge
21. Troy Waste Manufacturing Co.
22. Cluett, Peabody & Co.
23. Conway Bros. and Kane Brewery
24. Boston and Maine Railroad Complex
25. Ross Valve Manufacturing Co.
26. Oakwood Stove Works
27. Burdett, Smith & Co.
28. Miller, Hall and Hartwell Co.
29. Wilbur, Campbell and Stephens Co.
30. Van Zandt, Jacobs & Co.
31. American Seal Manufacturing Co.
32. Troy Cooperative Foundry
33. Federal Dam and Lock
34. J.J. Child Steamer Co. No. 11

HUDSON MOHAWK INDUSTRIAL GATEWAY (Cont.d)

Albany County

Green Island:
35. Ford Motor Company
36. Gilbert Car Manufacturing
37. Eagle Foundry
38. Troy and Schenectady Railroad Viaduct
39. Delaware and Hudson Railroad Freight House and Office

Watervliet:
40. Waterford Commercial District
41. Meneely Bell Foundry
42. Delaware and Hudson Railroad Shops

The organizations consulted do not consider their inventories to be complete. As lists are up-dated, CDRPC will make corresponding changes in the inventory for the coastal zone and consult with local historic societies and commissions for those sites which are not covered by the above-mentioned groups.

MODERATE DEVELOPMENT CONSTRAINTS

Two of the moderate development constraints (forested lands and agricultural lands) exist within the flood plain as well as outside. Recalling the previous section, all undeveloped land (including forests and farmland) within the flood plain was considered severely constrained and unsuitable for development. Forest areas and agricultural lands outside of the flood plain are considered to be moderate constraints to development. That is, some modification of the land is required to enhance its suitability for urban development. Moderately constrained land must be given second priority for development over lands which are designated as suitable for development.

Forested areas [in this case, all forested lands greater than one hectare (2.47 acres) in area] serve a number of useful purposes in the coastal zone. They exercise a stabilizing influence on steep slopes, provide a visual barrier between clusters of urban development, and act as a component of wildlife habitat. Agricultural lands are an important element of the Capital District's coastal zone and the regional economy. The majority of the agricultural land in the planning area is cropland and corn is the prevalent crop growing in the adequately-watered and fertile alluvial soils of the bottomland along the river. Table 15 illustrates the amount of agricultural land in the planning area and its relationship to undeveloped and total land area in the Capital District's coastal zone. In the Albany County planning area, agricultural land is the third most prevalent land use type, while in Rensselaer County it occupies a greater proportion of total land area than any type of urban land use. Agriculture is the second largest user of land in the planning area (see Tables 12 and 14).

Another moderate constraint to development is land with slopes between eight and fifteen percent. Some of the problems inherent to construction on slopes on greater than fifteen percent are applicable to building on lesser slopes but the consequences are sometimes less severe. All undeveloped lands with these slope characteristics which were not included as forest or agriculture were quantified as moderate constraints to development.

TABLE 15

AGRICULTURAL LAND IN THE CAPITAL DISTRICT'S COASTAL ZONE

Municipality	Agric. Land	Percent of Undeveloped Land	Percent of Total Land
Bethlehem (Hectares)	226	14.56	12.86
(Acres)	558		
Coeymans	31	4.07	3.61
	77		
Ravena	2	2.38	1.82
	5		
Total	259	8.28	5.21
	640		
E. Greenbush	151	17.87	14.37
	373		
N. Greenbush	125	19.69	18.63
	309		
Schodack	303	17.38	17.04
	748		
Total	579	13.44	10.44
	1430		
Planning Area	838	11.27	7.97
	2070		

AREAS OF DEVELOPMENT POTENTIAL

By mapping existing land use and constraints for future development, the balance of the areas shown "white" on the composite map, by definition, are those lands suitable for urban development. Tables 16 and 17 illustrate the land characteristics of Albany County's coastal zone planning area. Most of the City of Albany's land in the planning area is developed or constrained. Over one-half of Bethlehem's and Coeymans' coastal zone is constrained, a result of large areas of flood plain, agricultural and forest lands, and moderately steep slopes. Most of Colonie's coastal zone is developed but very little of the remaining land is constrained. Green Island's only large undeveloped parcel is the forested northern half of Center Island which is part of the flood plain. Ravena has large tracts of developable land but Watervliet has virtually none. All of the land in the Menands planning area is developed or constrained. The construction of I-787 in Menands and Albany has modified the actual flood plain boundary. Conceivably, the section of the highway would appear as an island in a broader flooded area because of the reduction of the floodway cross-section and the consequent raising of the flood elevation.

Tables 18 and 19 illustrate the land characteristics in Rensselaer County's coastal zone and the entire planning area. Castleton has a very small amount of land in the flood plain; most of the developable land is located at the top of the escarpment. Most of the undeveloped land in the Greenbushes' planning area is constrained; the land suitable for development is located away from the river and at the top of the escarpment. The situation is similar in Schodack which has the largest constrained proportion of land in the planning area. Expansion of the Port of Rensselaer and the approaches for the new Dunn Memorial Bridge have altered the contours along the shore. Troy's flood plain is quite narrow and most of the non-developable land is constrained by slopes. A large portion of the land suitable for development is the Uncle Sam Mall site.

For the entire planning area, almost equal proportions of the land are developed, severely constrained, moderately constrained, and suitable for development. Land suitable for development should be given first priority for new construction over land which is moderately constrained. Almost one-half of the land in the Capital District's coastal zone is included in this category. This analysis has examined strictly topographic land characteristics. A discussion of the redevelopment potential of older urban communities in the planning area follows at the end of this chapter.

C. POPULATION CAPACITY

Determining the population of the coastal zone is not a simple task unless the planning boundary is based on some type of enumeration area. A boundary based on simplicity of statistical analysis is likely to be deficient in terms of other considerations such as natural features or effectiveness of management. As discussed

TABLE 16

LAND CHARACTERISTICS OF ALBANY COUNTY'S COASTAL ZONE

Municipality	Developed Land	Severely Constrained Land	Moderately Constrained Land	Land Suitable for Development	Total Land
Albany (Hectares)	622	181	25	158	986
(Acres)	1537	448	62	388	2435
Bethlehem	206	410	543	599	1758
	509	1013	1342	1478	4342
Coeymans	98	168	369	224	859
	242	416	412	552	2122
Colonie	236	32	3	68	339
	583	79	7	168	837
Green I.	69	10	-	-	79
	170	25	-	-	195
Menands	329	233	22	-	584
	813	576	54	-	1442
Ravena	26	-	23	61	110
	63	-	57	152	272
Watervliet	257	-	-	-	257
	635	-	-	-	635
Total	1843	1034	985	1110	4972
	4552	2557	2434	2737	12280

- Less than 1 hectare

TABLE 17

PERCENTAGES OF LAND CHARACTERISTICS OF
ALBANY COUNTY'S COASTAL ZONE

Municipality	Developed Land	Severely Constrained Land	Moderately Constrained Land	Land Suitable for Development
Albany	63.08	18.36	2.54	16.02
Bethlehem	11.72	23.32	30.89	34.07
Coeymans	11.41	19.56	42.96	26.08
Colonie	69.62	9.44	0.88	20.06
Green I.	87.34	12.66	-	-
Menands	56.34	39.90	3.77	-
Ravena	23.64	-	20.91	55.45
Watervliet	100.00	-	-	-
Total	37.07	20.80	19.81	22.33

- Less than 0.01 percent

TABLE 18

LAND CHARACTERISTICS OF RENSSELAER
COUNTY'S COASTAL ZONE AND THE ENTIRE PLANNING AREA

Municipality	Developed Land	Severely Constrained Land	Moderately Constrained Land	Land Suitable for Development	Total Land
Castleton (Hectares)	72	15	42	105	234
(Acres)	178	37	104	259	578
E. Greenbush	206	425	167	253	1051
	509	1051	413	623	2596
N. Greenbush	36	39	425	171	671
	89	96	1050	422	1657
Rensselaer	324	67	136	216	743
	800	165	336	534	1835
Schodack	35	724	658	361	1778
	87	1788	1624	893	4392
Troy	568	42	92	369	1071
	1403	104	227	911	2645
Total	1241	1312	1520	1475	5548
	3066	3242	3755	3642	13705
Planning Area	3084	2346	2505	2585	10520
	7618	5799	6189	6379	25985

TABLE 19

PERCENTAGES OF LAND CHARACTERISTICS
IN RENSSELAER COUNTY'S COASTAL ZONE AND
THE ENTIRE PLANNING AREA

Municipality	Developed Land	Severely Constrained Land	Moderately Constrained Land	Land Suitable for Development
Castleton	30.77	6.41	17.95	44.87
E. Greenbush	19.60	40.44	15.89	24.07
N. Greenbush	5.37	5.81	63.34	25.48
Rensselaer	43.61	9.02	18.30	29.07
Schodack	1.97	40.72	37.01	20.30
Troy	53.03	3.92	8.59	34.45
Total	22.37	23.65	27.40	26.59
Planning Area	29.32	22.30	23.81	24.57

in section 4, a planning boundary of one mile from each side of the Hudson River was chosen for the Capital District's coastal zone.

CDRPC has data for 1970 population at various levels of aggregation. For the purposes of this study, the two smallest units [Census Tract and Traffic Analysis Zone (TAZ)] are the most useful. TAZ's are smaller units of analysis than census tracts but aggregations of TAZ's coincide with census tract boundaries.[2/] The area of each municipality with the CZM planning boundary was divided into TAZ's. For those TAZ's entirely contained within the planning area, the total 1970 population for the TAZ was used. This data was generated as part of CDRPC's comprehensive planning process through participation in the '701' Comprehensive Planning Program and the Unified Planning Work Program for transportation planning. For those TAZ's partially contained by the planning area, the process was somewhat more complex. Block statistics from the 1970 Census were used to determine the proportion of the 1970 TAZ population within the planning area (block boundaries do not cross TAZ boundaries and thus can be used to proportion TAZ as well as census tract population). The population data for TAZ's either partially or wholly within the planning area was aggregated to yield a total population for the proportion of each municipality in the planning area. These data were aggretated by county and a regional coastal zone population total was thus obtained.

To put existing development policies as reflected by local zoning ordinances into perspective, it is necessary to determine the population that the study area can absorb (i.e., a maximum reasonable population). There are several methods for computing population capacity as presented in the following equations:

METHOD ONE

$$\frac{(A_{RZ} \times K)}{RD_{max}} \times H = P_Z; \quad \Sigma P_Z = PC$$

where: A_{RZ} = Acreage in residential zone

H = Average household size (1970 Census)

K = Constant [3/] = .71

PC = Population Capacity

P_Z = Population of zone

RD_{max} = Maximum permissible residential density in a given zone as per CDRPC zoning classification (acres/dwelling unit)

Σ = "The sum of all...."

2/ For a detailed description of Traffic Analysis Zones and related population data, see Restructuring Traffic Analysis Zones in the Capital District, CDRPC Technical Report 400-1, December, 1974.

3/ Twenty-nine percent of the residentially zoned land area was considered to be used for streets and community facilities (the recommended composition of single-family neighborhoods of 5,000 people or more -- American Public Health Association, Planning the Neighborhood, 1960, page 64).

METHOD TWO

$$As \times \frac{P_e}{RA_e} + P_e = PC$$

Where A_s = Acreage suitable for development

P_e = Existing population

PC = Population Capacity

RA_e = Existing residential acreage

METHOD THREE

$$\frac{As \times K}{RD_{max}} \times H = P_s \; ; \quad \frac{Ac \times K}{RD_{min}} \times H = Pc;$$

$$\sum Ps + \sum Pc + P_e = PC$$

Where Ac = Acreage moderately constrained for development

As = Acreage suitable for development

H = Average household size (1970 Census)

K = Constant = .71

PC = Population capacity

Pc = Population capacity of constrained area

P_e = Existing population

P_s = Population capacity of non-constrained area

RD_{max} = Maximum permissible residential density in a given zone as per CDRPC zoning classification (acres/dwelling unit)

RD_{min} = Minimum permissible residential density in a given zone as per CDRPC zoning classification (acres/dwelling unit).

Method One is a broad-based approach which does not consider land characteristics. Method Two is based on land characteristics but depends on an average, community-wide existing residential density and does not consider permissible densities as mandated by local zoning ordinances or an increase in residential density through redevelopment in existing built-up areas. Method Three combines the advantages of Methods One and Two with the additional distinction between constrained and non-constrained land. It was assumed that, in a residential zone, land suitable for development was to be built

up at the maximum possible density and land moderately constrained for development was to be built up at the minimum allowable density in a residential zone. Method Three also does not consider an increase in residential density through redevelopment but is the least compromising of the three methods. Castleton has no zoning ordinance and Method Two was used to compute the village's population capacity with the distinction remaining between constrained and non-constrained land. Green Island and Watervliet have no land suitable for development and no additional population capacity was estimated.

Table 20 illustrates the population situation for each portion of the planning area. Albany's capacity is low because it has very little additional land for development in the planning area. Coeymans, Colonie, and Ravena appear to have adequate capacity to absorb additional population. The special permit section of Bethlehem's coastal zone was not considered in the population capacity analysis but the remaining residential zones still provides for very large additional population in the planning area. Conceivably, this area is "overzoned" (high permissible residential density) for residential development. The coastal portions of the Rensselaer County municipalities can seemingly accomodate a reasonable amount of additional population growth.

REDEVELOPMENT OF EXISTING DEVELOPED AREAS

The foregoing analysis does not consider the opportunities for intensification or redevelopment of already developed areas in all land use categories. This is extremely important (although difficult to measure) in the growth potential of a community. It would be useful, although cumbersome and inaccurate, given the available groupings of population statistics, to calculate for occupied land the difference between the maximum density allowed by a specific zone and its current level of development.

Building on vacant parcels within densely built-up neighborhoods, because of the immediate availability of utilities, infrastructure and other public services, may prove to be more economical to the developer than starting with none of these on a large vacant tract in a relatively remote, undeveloped area. This filling in technique would cause an increase in population capacity not accounted for in the previous analysis. Redevelopment (the clearance of unsound structures and replacement with new construction), rehabilitation and reuse are other means of increasing density and the population capacity. These methods may be applied to commercial, industrial, institutional and open space land use types also.

During the planning phase of the Coastal Zone Management Program, due consideration will be given to the development potential of already built-up areas. CDRPC's Preliminary Regional Development Plan recommends "infill" of existing urban areas as one of its major development strategies and cites specific urban locations in the Region for this policy to be implemented. This policy was determined in order to meet a variety of planning goals but also in recognition of the availability of substantial amounts of vacant and underutilized land scattered throughout the older urban areas. Thus, the Coastal Zone Management Program can draw on this information and analysis and coordinate CZM planning policies with those already established in the RDP and current policies of local jurisdiction.

TABLE 20

1970 POPULATION AND ADDITIONAL POPULATION CAPACITY FOR THE CAPITAL DISTRICT COASTAL ZONE

Municipality	1970 CZ Population	Population Capacity of Constrained Areas	Population Capacity of Non-Constrained Areas	Total Additional Population Capacity
Albany	29,100	179	630	809
Bethlehem	1,700	8,438	21,187	29,625
Coeymans	1,800	2,399	4,017	6,416
Colonie	2,400	-	2,277	2,277
Green I.	2,900	-	-	-
Menands	3,200	570	-	570
Ravena	800	472	141	613
Watervliet	12,300	-	-	-
Total	54,200	11,488	28,252	39,740
Castleton	1,700	985	350	1,335
E. Greenbush	2,000	1,521	758	2,279
N. Greenbush	400	2,552	870	3,422
Rensselaer	9,500	3,264	450	3,714
Schodack	400	989	499	1,488
Troy	35,400	3,774	2,968	6,742
Total	49,400	12,100	5,545	17,645
Planning Area	103,600	23,588	33,797	57,385

This Chapter is one of the major substantive elements of the report. It essentially is an analysis of land characteristics (both in terms of human use of the land and land in a natural state) as well as the role and character of the Hudson River. The predominant land use types in the Capital District coastal zone are residential and industrial. The river has a history of commercial activity and, unfortunately, degraded water quality although the latter trend is being reversed. Because of the Hudson Valley's long history, active efforts have been undertaken to preserve edifices of the past for future generations.

Despite the abundance of human activity in the Capital District's coastal zone, over two-thirds of the land is not intensively developed or completely undeveloped. Nearly one-half of this land is severely or moderately constrained for future development. Those lands which are virtually unconstrained or moderately constrained for future development will be the areas where future growth occurs. Under existing land use controls, a reasonable amount of additional population growth can be accomodated. Aside from new construction, additiional growth can be achieved through redevelopment, rehabilitation, and reuse programs.

At this point in the planning process, the proposed management boundary was re-examined in light of the results of the analysis of land characteristics. Generally, the lands with severe development constraints are located within the management area while much of the moderately constrained and unconstrained land is located outside of the management boundary (see accompanying map). As a result of the analysis, no major realignment of the proposed management boundary was necessary except in the Town of Schodack, Rensselaer County where the constrained land extended to the one-mile planning area boundary and the proposed management boundary was appropriately modified. As previously mentioned in Section 4, the U.S. Soil Conservation Service felt that an analysis of soil conditions immediately outside of the planning area would be useful in assessing the impact on the coastal zone of any development adjacent to the management area and possibly illustrate the need for a two-state system of management controls. This project will be an integral component of CDRPC's second phase of the CZM program.

7. INTERGOVERNMENTAL COORDINATION

Horizontal and vertical intergovernmental coordination and communication between State, regional, and local participants, and between coastal regions throughout the State are essential in a program of the nature and structure of New York State's Coastal Zone Management Program. Regional and local subcontractors contributing technical assistance and local expertise to a State agency designing a statewide comprehensive plan for coastal zone management must be cognizant of the direction the statewide program is taking, and the State as well must be aware of local variations in situation and approach.

CDRPC and New York State Agencies

CDRPC's location in Albany, (near the Department of State and Department of Environmental Conservation will enable convenient communications during the crucial plan formation phase. During this first phase, degree of contact has not been ideal although a firm basis for a close working relationship with the Department of State has been established for future work.

As stated in Section 3, CDRPC and the N.Y.S. Department of Environmental Conservation staff have discussed coordination of mutual information needs and resources in various categories for the Capital District Coastal Zone area. These discussions were conducted during a NYS-DEC workshop on Coastal Zone Management in the Upper Hudson Region in May 1974 and again in November 1975 when Case Rotteveel, representing NYS-DEC, visited the CDRPC offices. CDRPC subsequently completed a follow-up questionnaire on information needs and resources. CDRPC's information needs are in the area of vegetation and wildlife ecology, and soils and geology. The resources listed in Table 2, page 11, are all available for the use of NYS-DEC.

CDRPC and Other CZMP Substate Contractors

On September 9, 1975, CDRPC initiated a coastal zone information exchange among several substate CZMP contractors. Letters were sent to:

Black River-St. Lawrence Regional Planning Board
Central New York Regional Planning and Development Board
Columbia County Planning Board
Erie-Niagara Regional Planning Board
Genesee-Finger Lakes Regional Planning Board

Since that time, every CDRPC publication on the CZMP was distributed to these planning boards; CDRPC has received, in return, samples of CZMP work and reference material that has been informative and useful. Particularly useful material was received from the Black River-St. Lawrence RPB for general CZM approaches and techniques and from Columbia County Planning Board because of mutual interests and proximity.

The Federation of Regional Planning and Development Boards in New York State, formed in 1974, provides a vehicle of communication among regional planning bodies throughout the State, a forum for discussion of mutual concerns, and a united voice to express these concerns to State, federal and other agencies and organizations.

TABLE 21: SUMMARY OF MEETINGS AND COMMUNICATIONS BETWEEN CDRPC AND DOS

Date	Personnel	Subject
8/5/75	Hank Williams, DOS Bill Barton, DOS CDRPC staff	General discussion of CZMP in New York State and the Capital District; progress on both sides; future activites; problems that had arisen or were anticipated.
8/8/75	CDRPC Staff	Completed OCZM survey to provide DOS and OCZM with information concerning our CZMP activities and needs.
8/12/75	CDRPC Staff	Submitted progress report on CZMP activities during period of January - June 1975.
8/26/75	CDRPC staff	Submitted comments on DOS draft guidelines for coastal zone boundaries and draft outline of proposed guidelines for NYS-CZM. There were no substantial objections to the first two sections of the boundary guidelines, but disagreed with 11" x 22" sheet size requirement for boundary base maps. CDRPC's study area is linear - roughly 19" x 53" at 1:24,000 scale. For purposes of analysis, a single map format would be more appropriate. On the proposed guidelines, the preferred order would be: 1) goals and objectives, 2) information sources and requirements, and 3) public participation.
8/28/75	CDRPC staff	Distributed copies of Technical Memorandum No. 1: Regional Goals and Objectives to DOS, Technical Advisory Committee (TAC) and Local Government Advisory Committee (LGAC) members for review.
9/18/75	CDRPC staff Kevin Cross, DOS	Coastal Zone Technical Advisory Committee meeting, Kevin Cross represented DOS (see page 57 for meeting description).
9/25/75	CDRPC staff	Submitted comments on DOS draft guidelines for public participation and public information. While public participation and information are essential parts of CZMP, CDRPC has neither the staff nor time during the first phase to implement such an elaborate scheme of outreach as proposed in these guidelines. This would be more appropriate in the second phase of the project.
10/6/75	CDRPC staff	Submitted quarterly progress report to DOS for period of 7/1/75 - 9/30/75.
10/15/75	CDRPC staff	Distributed copies of Technical Memorandum No. 2: Coastal Zone Boundaries,and maps of the proposed boundaries to DOS, TAC and LGAC members for review.
10/21/75	CDRPC staff	Submitted comments on DOS draft guidelines on CZM Goals and Objectives. No substantive objections.
10/28/75	CDRPC staff and Chairman	Executed first amendatory agreement extending CZMP termination date from 10/31/75 to 12/31/75.

Table 21:

(Continued)

Date	Personnel	Subject
12/22/75	Kevin Cross, DOS	CDRPC received verbal comments on CZ boundaries from DOS. No substantial objections. Recommended coordination with Columbia County on the subject of boundaries.
12/24/75	CDRPC staff	Submitted draft proposal to DOS for participation in the second year of New York's CZMP.
1/6/76	CDRPC staff and Chairman	Executed second amendatory agreement extending termination date from 12/31/75 to 2/27/76.
1/22/76	CDRPC staff	Submitted quarterly progress report for period of 10/1/75 - 12/31/75
1/26/76	CDRPC staff David Beurle, DOS	Meeting to discuss work accomplished in first phase and work yet to be completed. DOS brought specific criticisms on work submitted and suggestions for completion of remaining work. Agreement was reached on several major questions of map form, allowable projects, and deadlines.
2/17/76	CDRPC staff	Distributed copies of Technical Memorandum No. 3: Analysis of Existing Local Zoning Ordinances, Technical Memorandum No. 4: Geographic Areas of Particular Concern and Areas of Development Potential, and maps showing Land Suitability for Development to DOS, TAC and LGAC members for review
2/27/76	CDRPC staff	Submitted draft final report to DOS; submitted comments on DOS draft second phase proposal; submitted 2nd draft second pahse proposal for Capital District CZMP.
3/15/76	CDRPC staff, DOS, other contractors	Discussion of first-year work accomplishments and second-year work program.
3/17/76	CDRPC staff	Submitted quarterly progress report for period of 1/1/76-2/29/76
3/24/76	CDRPC staff, David Beurle, DOS	Received and discussed DOS comments on draft final report.

TABLE 22: FEDERATION OF REGIONAL PLANNING AND DEVELOPMENT BOARDS IN NEW YORK STATE

Black River-St. Lawrence Regional Planning Board
Capital District Regional Planning Commission
Central New York Regional Planning and Development Board
Erie-Niagara Regional Planning Board
Genesee-Finger Lakes Regional Planning Board
Herkimer-Oneida Counties Comprehensive Planning Program
Lake Champlain-Lake George Regional Planning Board
Southern Tier Central Regional Planning and Development Board
Southern Tier East Regional Planning Board
Southern Tier West Regional Planning Board
Tri-State Regional Planning Commission

During 1975 quarterly meetings were held in Albany on April 25; in Corning on July 24; in Canton on October 1; and in Syracuse on December 2. At the April 25 meeting, a round-table discussion on environmental programs was on the agenda. Henry G. Williams of NYS Department of State, Division of State Planning, was present to talk about the CZMP and its immediate future which was uncertain at that time. At the other meetings, although the CZMP was not an item on the agenda, the program and its progress was the subject of informal discussion among substate contractors.

The City of Troy is one of the three central cities in the Capital District Region and has thus been a major focus for study at CDRPC since the Commission began examining and planning for the Region in 1967. The CDRPC staff has developed a useful body of information on the City's physical, social, and economic conditions. Based on this, CDRPC has recommended in its Preliminary Regional Development Plan increased activity in this older urban community through redevelopment, infill, and rehabilitation and conservation to maintain and expand Troy's role as a strong center in the Region. This information in statistical, report, and map form has also proved to be a useful resource for Troy's Bureau of Planning and Community Development. A close working relationship has been established between the two agencies which has been mutually beneficial.

This relationship has been extended to each agency's work under the CZMP. During the application period, the two agency staffs exchanged ideas on work program proposals and coordinated them where appropriate. Staff members from the two agencies have met frequently throughout this first phase period to exchange information on work progress, and problems and difficulties encountered. The important issue of developing a coastal zone boundary within the City of Troy that was mutually agreeable and that satisfied both sets of standards and program objectives was quickly resolved; Troy's topography dramatically separates "river bottoms" and "uplands" and the land use pattern reflects this terrain, so the boundary location was a very natural one. The Troy staff assisted CDRPC in updating land use and zoning information for the coastal zone area. CZMP publications of each agency have been exchanged on a regular basis. The Troy staff is also represented on CDRPC's Technical Advisory Committee on the Coastal Zone.

Because of CDRPC's more coarse-grained regional approach to the Capital District coastal zone relative to the detailed urban-scale perspective required in the development of a model local coastal zone ordinance, CDRPC has not contributed as much specific technical assistance to the Troy staff as originally anticipated. During the second phase, the model ordinance will be very useful to CDRPC as a management program is being developed. If the City of Troy continues to participate in the CZMP, working closely together during the second phase will be essential.

8. PUBLIC AND TECHNICAL INFORMATION EXCHANGE

Although CDRPC has had an established Technical Advisory Committee consisting of county and local planners and regional representative of State agencies with interests in CDRPC's planning programs, and has already established Citizens Advisory Committees by county, the staff determined that special committees with somewhat different membership were required to advise, review, and participate in the Capital District CZMP.

TABLE 23: TECHNICAL ADVISORY COMMITTEE ON THE COASTAL ZONE

Agency Represented	Department or Division
Albany County Environmental Management Council	-
Albany County Planning Board	-
Albany County Cooperative Extension	-
Albany Port District Commission	-
U.S. Department of Agriculture	Soil Conservation Service
U.S. Army Corps of Engineers	N.Y. District, Albany Field Office
Capital District Transportation Committee	-
N.Y.S. Cooperative Extension	Regional Office
N.Y.S. Department of Environmental Conservation	-
Hudson River Valley Commission	-
N.Y.S. Parks and Recreation	Recreation Planning and Research
Rensselaer County Bureau of Planning	-
Rensselaer County Cooperative Extension	-
Rensselaer County Environmental Management Council	-
Sea Grant Program	SUNY at Albany
N.Y.S. Department of State	Division of State Planning
Troy Bureau of Planning and Community Development	-

TABLE 24: LOCAL GOVERNMENT ADVISORY COMMITTEE ON THE COASTAL ZONE

Chief Elected Official, Planning Board Chairman, Environmental Council Chairman of each community:

Albany	Menands
Bethlehem	North Greenbush
Castleton-on-Hudson	Ravena
Coeymans	Rensselaer
Colonie	Schodack
East Greenbush	Troy
Green Island	Watervliet

Meetings of these committees, and of CDRPC's standing advisory committees, the Commission itself, and other occasions when the CZMP was introduced, publicized or discussed will be cited in Tables 25 and 26.

As described in Section 3, page 10, a slide presentation illustrating the Capital District's coastal zone has been compiled and has been shown to various groups as part of an introduction to the Coastal Zone Management Program and its local area of focus. The following table cites the numerous occasions of its use. It is expected that it will be utilized frequently during the next phase as the necessity for more public meetings increases.

TABLE 25: SUMMARY OF MEETINGS, WORKSHOPS, PRESENTATIONS AND CORRESPONDENCE ON CZMP

Date	Organization	Subject
5/28-29/75	SUNY College of Environmental Science and Forestry, Syracuse	Conference/Workshop on Visual Quality and the Coastal Zone - 1 CDRPC staff member attended.
9/10/75	CDRPC's Rensselaer County Citizens Advisory Committee (CAC)	Introduction to CZMP - National, State, Capital District. Slide presentation, illustrating Capital District coastal environment. Work program described - emphasized need for local participation in early planning stage.
9/16/75	CDRPC's Local Government Advisory Committee on the Coastal Zone	Introduction to CZMP - National, State, Capital District. Slide presentation illustrating Capital District coastal environment. Work program described especially items requiring local input. Preliminary boundary alternatives presented. Discussion indicated interest in program and participation. Attendance fair.
9/17/75	Capital District Regional Planning Commission	Introduction to CZMP - National, State, Capital District. Slide presentation illustrating Capital District coastal environment. Work program described - emphasized need for local participation.
9/18/75	CDRPC's Technical Advisory Committee on the Coastal Zone	Introduction to CZMP - National, State, Capital District. Slide presentation illustrating Capital District coastal environment. Work program described, especially items requiring technical input. Preliminary boundary alternatives presented. Discussion produced suggestions of areas to investigate, concerns with need for coordination with other programs and CZMP in adjacent counties.
9/21/75	Sea Grant Program, SUNYA	Dr. Paul Marr and graduate student, Cynthia Harmon, interviewed CDRPC staff for input on the idea of a publication for local government officials to educate them on CZMP and alternative implementation techniques.
10/7/75	CDRPC's Rensselaer County CAC	Discussion of Coastal Zone Management Program as it pertains to Rensselaer County, local interests in coastal area, sites of current activity, problem areas, preliminary boundaries.
10/9/75	CDRPC's Albany County CAC	Introduction to CZMP - National, State, Capital District. Slide presentation of Capital District coastal environment; Work program described - emphasized need for citizen awareness and input in early planning stages.
10/10/75	Rensselaer Polytechnic Institute Students - Center for Urban/ Environmental Studies	Introduction to CZMP - National, State, Capital District. Slide presentation of Capital District coastal environment. Work program described - possibilities for implementation discussed.

Table 25 (continued)

Date	Organization	Subject
10/15/75	CDRPC's LGAC and TAC	Preliminary CZM Boundary Map and Technical Memorandum on CZ boundaries sent to committee members for review and comment. For summary of comments, see page 20.
10/22/75	Albany County Planning Board	Utilized ACPB's resources to update zoning information for Albany County communities in the coastal zone.
12/1/75	Rensselaer County Bureau of Planning	Submitted article on CZMP in the Capital District to RCBP for publication in its quarterly newsletter.
12/15/75	Schenectady County Organization for Action for the Riverfront	Sent letter describing mutual interests in riverine coastal management within this Region; mutual benefit of meeting to exchange ideas.
12/22/75	Rensselaer County Bureau of Planning	Utilized RCBP's resources to update zoning information for Rensselaer County communities in the coastal zone.
1/15/75	Geography Department SUNY at Albany	Rodworth Anderson, Graduate student, utilized CDRPC's existing land use information for the Coastal Zone in his study on the potential for recreational land use in the Hudson River coastal zone.
1/28/76	Urban Sociology Class, Robert Stierer, Instr., SUNY at Albany	Introduction to CZMP - National, State, Capital District. Work program described - emphasized need for early local government and citizen participation in the planning of the management program
2/5/76	League of Women Voters, Albany and Rensselaer Counties	Introduction to CZMP - Capital District. Slide presentation of Capital District coastal environment. Work program described - emphasized need for early participation of local government and citizen groups such as the League in the planning of the management program.
2/11/76	CDRPC	CDRPC bimonthly newsltter - lead article entitled "Coastal Zone Management in the Capital District", an introduction to CZMP on all levels and emphasis on local impact and participation. Indicated that speakers on CZMP available for interested groups.
2/17/76	CDRPC's LGAC and TAC	Land Suitability for Development Map, Technical Memorandum No. 3: Analysis of Existing Local Zoning Ordinances in the Coastal Zone, and Technical Memorandum No. 4: Geographic Areas of Particular Concern and Areas of Development Potential sent to committee members for review before March 2, 3 meetings.
3/2/76	CDRPC's TAC	Meeting to discuss Land Suitability for Development Map, Technical Memorandums No.3,4
3/3/76	CDRPC's LGAC	Meeting to discuss Land Suitability for Development Map, Technical Memorandums No.3,4

TABLE 26

COMMENTS RECEIVED CONCERNING FINAL DRAFT REPORT

Date	Organization	Nature of Comments
3/3/76	N.Y.S. DEC	Suggestions for expanding analysis of geographic areas of particular concern.
3/8/76	N.Y.S. Co-op. Extension	No specific comments.
3/12/76	Albany Port District Commission	Information concerning the U.S. Department of Commerce Maritime Administration's views on coastal zone management.
3/15/76	Rensselaer County Bureau of Planning	Substantive comments on several report items; grammatical corrections.
3/23/76	N.Y.S. DOS, Division of State Planning	Detailed report critique with suggestions for incorporation in the final report.

Another public education medium currently being developed by CDRPC staff for the CZMP is a portable, two-panel, lighted display depicting graphically, photographically and verbally the National, State, and local purposes of this program and its impact on the citizen living in a coastal zone community. It is anticipated that the display will be scheduled to be shown at a variety of public institutions and other locations such as town halls, schools, libraries, banks, and shopping centers. The display panels are designed to be installed in CDRPC's Regional Development Plan bus - a mobile display unit within the shell of an early model CDTA bus. At the present time, during CDRPC's Regional Development Plan consultation period, the bus houses displays describing the RDP. But, after that period or between scheduled events, the bus can be used for the CZMP displays. It would be most appropriate, for example, to have the bus at the location of any public meetings, or hearings, before and during the meetings.

9. SUMMARY OF FINDINGS

1. The preliminary coastal zone management boundary as proposed at the outset of the project was essentially maintained after analyzing the results of the land characteristics except for a realignment in the Town of Schodack. At the suggestion of the U.S. Soil Conservation Service, soil conditions immediately adjacent to the planning area will be mapped during the second phase to assess the need for expanding the management area or a two-stage type of management structure.

2. Twelve of the fourteen coastal zone communities have adopted zoning ordinances. The majority of the land in the coastal zone is zoned residential although industrial zoning is more prevalent than any single residential zoning type.

3. Eleven of the fourteen coastal zone communities have master plans although virtually none of the plans have been adopted by the policy-making bodies of the communities.

4. Non-local land use programs affecting the coastal zone include county-level review of zoning changes and variances near county roads, the Hudson River Valley Commission project review, procedures, the Freshwater Wetlands Act, the State Environmental Quality Review Act, and the National Flood Insurance Program.

5. Thirty percent of the land in the coastal zone is developed for urban uses. The major land use types are residential, industrial, and institutional.

6. Because of the historic importance of the Hudson Valley, the coastal zone has a substantial number of historic sites which must be preserved for future generations.

7. Of the remaining seventy percent of the land in the coastal zone, nearly equal proportions are severely or moderately constrained, or essentially suitable for urban development. The area also has considerable potential for redevelopment, a factor which will be closely examined in the second phases of program development.

8. Based on existing zoning ordinances, it was ascertained that an additional 57,000 people could be accomodated within the coastal zone at current permissible residential densities in addition to the estimated 104,000 currently residing in this area (this figure does not allow for higher residential densities based on potential redevelopment).

10. FUTURE DIRECTIONS

Few concrete conclusions can be drawn from the work accomplished during the first phase Coastal Zone Management Program in the Capital District. This is the result of program design, not a problem of output: the first phase was designed to be and was in fact a "gearing-up" period of organizational activity and exploratory investigation. There was some preliminary analysis and decision-making, but this was approached as a first step in a refinement process.

A very apparent conclusion that can be drawn, however, is that there is great potential for an active Coastal Zone Management Program in the Capital District. Through familiarity with local concerns, prior associations through other projects, and communication directly related to the CZMP during the first phase, CDRPC staff finds a significant level of interest and recognition of the need for a broader approach to the protection and development of the Hudson River shorelands. Initial analysis has indicated that the amount of vacant land although substantial in terms of proportion (seventy percent) is diminishing and that nearly one-half of the vacant land is severely or moderately constrained for development. This situation indicates a need to act collectively to control the use of these resources.

At the end of this first phase, the output from each work item has enabled CDRPC to be well-equipped to move into the second phase of actual program development. Information on natural resources and features, man-made physical features, and local governmental controls within the coastal zone has been mapped and quantified uniformily. The natural and man-made physical features have been analyzed in terms of constraining characteristics regarding development. The analysis of land characteristics was not conducted from an environmental preservation nor a developmental viewpoint; it was designed and executed for the purpose of providing sound information for a program of effective resource management. The study of local zoning ordinances was performed not in isolation but with full consideration of the physical capabilities of the zoned land. A preliminary coastal zone boundary, reflecting National and State boundary criteria, CDRPC standards and goals, and local government and technical opinion, has been established.

Also established are vehicles for local government and technical input into this Region's CZMP and continuing review of CDRPC's CZMP work through the Local Government and TEchnical Advisory Committees formed specifically for this program. CDRPC has also made significant progress in the important area of early public involvement, without which this program would have little meaning or support. Tools and relationships have been developed to enable future public contacts.

Looking toward the second year, the approach should be more qualitative in nature. Potential development areas have been located and quantified; the next step is a qualitative determination of priorities. Fragile resource areas have been outlined and quantified; priorities for preservation action must be established next. Now that the locations and amounts of the various local zoning categories are known and the population capacity of vacant lands in terms of zoning requirements has been calculated, qualitative decisions may be made as to the value of existing local zoning as an implement of management in the coastal zone. We have seen local zoning employed with certain alterations to accomplish the goals of the National Flood Insurance Program. Existing land use controls in the Capital District's coastal zone should be used to the fullest extent to implement and direct the management program's objectives.

A portion of the Coastal Zone Management Program second phase which should develop both qualitatively and quantitatively is the public participation role. The formation of priorities and plans must involve local citizens and officials to the maximum extent possible. The established committee structures, contacts made with citizens advisory committees and interested citizen organizations, and the visual communications media developed for the program will form the basis for an active public participation program. A dominant feature of the second pahse will be this major effort to cultivate broad-based interest in and hopefully support for the Coastal Zone Management Program in the Capital District.

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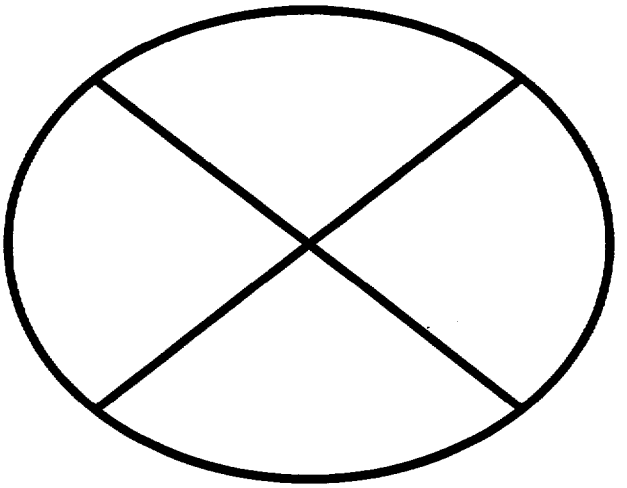

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