RIVER BEND PARK

MASTER PLAN

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Master Plan

U.S. DEPARTMENT OF COMMERCE NOAA
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TABLE OF CONTENTS

I. Introduction

II. Inventory and Analysis 4
A. Inventory of Site Conditions 4
B. Site Suitability 14

III. User Needs and Program 17
A. User Needs 17
B. Development Program 18

IV. The Master Plan 20
A. Purpose 20
B. Activity Areas (A through I) 21
C. Sitewide Considerations 34

V. Statement of Compliance 38

VI. Implementation 42
A. Goal and Objectives 42
B. Priorities and Phasing 43
C. Financing Acquisition 44
D. Recommendations and Conclusions 58

Acknowledgements

Appendix A Pinelands/CAFRA Jurisdiction Areas
Appendix B Nautical Chart for Egg Harbor River
Appendix C Plant Associations
Appendix D Wetlands Inventory of the 24 Acre Goldstein Property

List of Illustrations

		Page
Map 1	Location	2
Map 2	Physical Environment	5
Map 3	Opportunities and Constraints	15
Map 4	Master Plan	22
Map 5	Phasing Plan	23
Map 6	Special Areas	39
Table 1	Development Program	19
Table 2	Use Area and Acreage	37
Table 3	Construction Cost Estimate	62
Figure 1	Aerial View Egg Harbor River	3
Figure 2	Perch cove	3
Figure 3	Tidal Marsh	9
Figure 4	Hardwood Swamp	9
Figure 5	Upland Forest	11
Figure 6	Upland Forrest	11
Figure 7	Site along Somers Point-Mays Landing Rd.	13
Figure 8	Site along Betsy Scull Road	13
Figure 9	Illustrative Plans Areas A and B	25
Figure 10	Sketch of Main Entry and Marsh Boardwalk	26
Figure 11	Illustrative Plan Area C	28
Figure 11	Illustrative Plan Area E	30
Figure 12	Illustrative Plan Area E	31
Figure 14	Prototypic Parking Treatment	36
Figure 15	Operation and Maintenance Costs	61
Figure 16	Pricing Methods	61

Figure 15 Operation and Maintenance Costs

INTRODUCTION

In March of 1986, the Atlantic County Department of Regional Planning and Development received a Coastal Planning grant to develop a Recreation Master Plan for the River Bend site in Egg Harbor Township, New Jersey.

The River Bend site is part of a larger park system called The Great Egg Harbor Linear Park, Phase II. Land acquisition funding was provided by the New Jersey Green Acres Program which specified that the park system was to remain predominantly in a natural state. The entire system includes the Lake Lenape site totaling 1,843 acres in Hamilton Township and the River Bend site totaling 535 acres in Egg Harbor Township. The River Bend site was targeted for active recreation use and the Lake Lenape site for education and passive recreation use. The location of the River Bend site is shown on the following map.

As a result of the work performed in the Master Plan by this consultant and by a separate wetlands consultant, it became apparent that a much greater percentage of undevelopable land was present on the River Bend site than originally envisioned, thus reducing the amount of active recreational facilities intended for the site.

All environmentally sensitive areas were mapped and are protected in the plan. This amounts to 80% of the total 535 acres. For the Lake Lenape site, approximately 85% of the 1,843 acres will be protected.

According to the most recent edition of The Outdoor Recreation Plan of New Jersey (November 1984) "Atlantic County's population is expected to grow more than any other county in the state, increasing more than 53% in the next ten years." The report also indicates that relative to other counties in the state, Atlantic County's supply of active recreation facilities falls far short in the area of outdoor games, which include ball fields and courts.

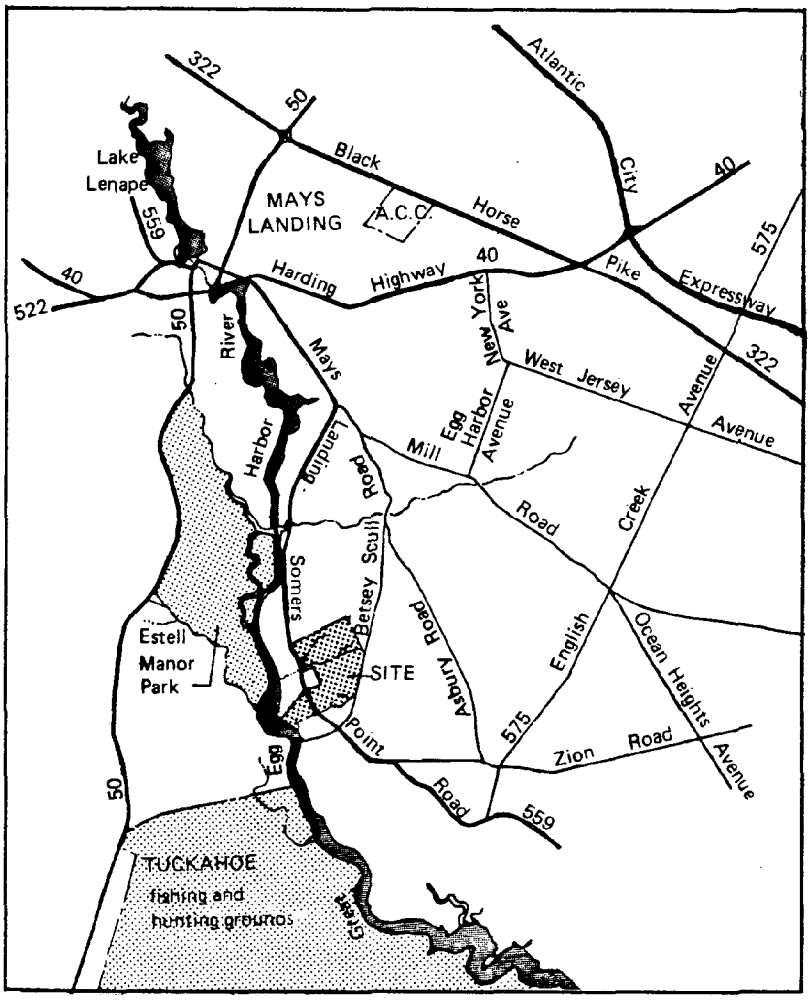
Given these conditions, the decision to develop River Bend's full potential to help alleviate the recreation needs of the County is significant. More importantly, this goal will be achieved while preserving and protecting the natural, environmentally sensitive areas which constitute the vast majority of the acreage at River Bend.

This report has been organized to first present an inventory of existing conditions on the site and an analysis of the site's suitability for recreational development. This section is followed by a chapter describing the program of uses for River Bend Park. Following that chapter is a presentation of the Master Plan, the expression of the site's suitability and the development program translated into a design concept and its components including phasing.

the Master Plan, the expression of the site's suitability and the development program translated into a design concept and its components including phasing.

During the course of developing the plan, several workshops were held with Atlantic County staff and local municipal officials and representatives to evaluate alternative approaches to the program and plan. The alternatives analysis is a useful tool in the master planning process to reach a consensus on a preferred plan.

The last chapter addresses the important subject of plan implementation. At the end of this chapter, order-of-magnitude construction costs are presented for each phase and development area.



MAP 1 LOCATION

FIGURE 1 Great Egg Harbor River, saltmarsh, and hardwood swamp

FIGURE 2 View of Perch Cove and hardwood swamp at Somers Point - Mays Land Road

I. INVENTORY AND ANALYSIS

Because of its unique location, River Bend Park provides an opportunity to experience within one site a diverse cross-section of the Coastal Plain environment indigenous to undisturbed parts of southern New Jersey. The Great Egg Harbor River boarders the western edge of the site creating a dynamic landscape of open water which filters into the site through a vast tidal marsh. A hardwood swamp forest forms the edge of the marsh and continues along small streams which lead further into the site. The streams are separated by areas of upland which give rise to another landscape, that of the mixed oak-pine forest typical of this part of New Jersey. The following narrative describes each of these environments in more detail. For this part of the discussion, the area of the site west of Somers Point-Mays Landing Road will be referred to as the lower section of the site and that area east of the road as the upper section of the site.

A. Inventory of Site Conditions

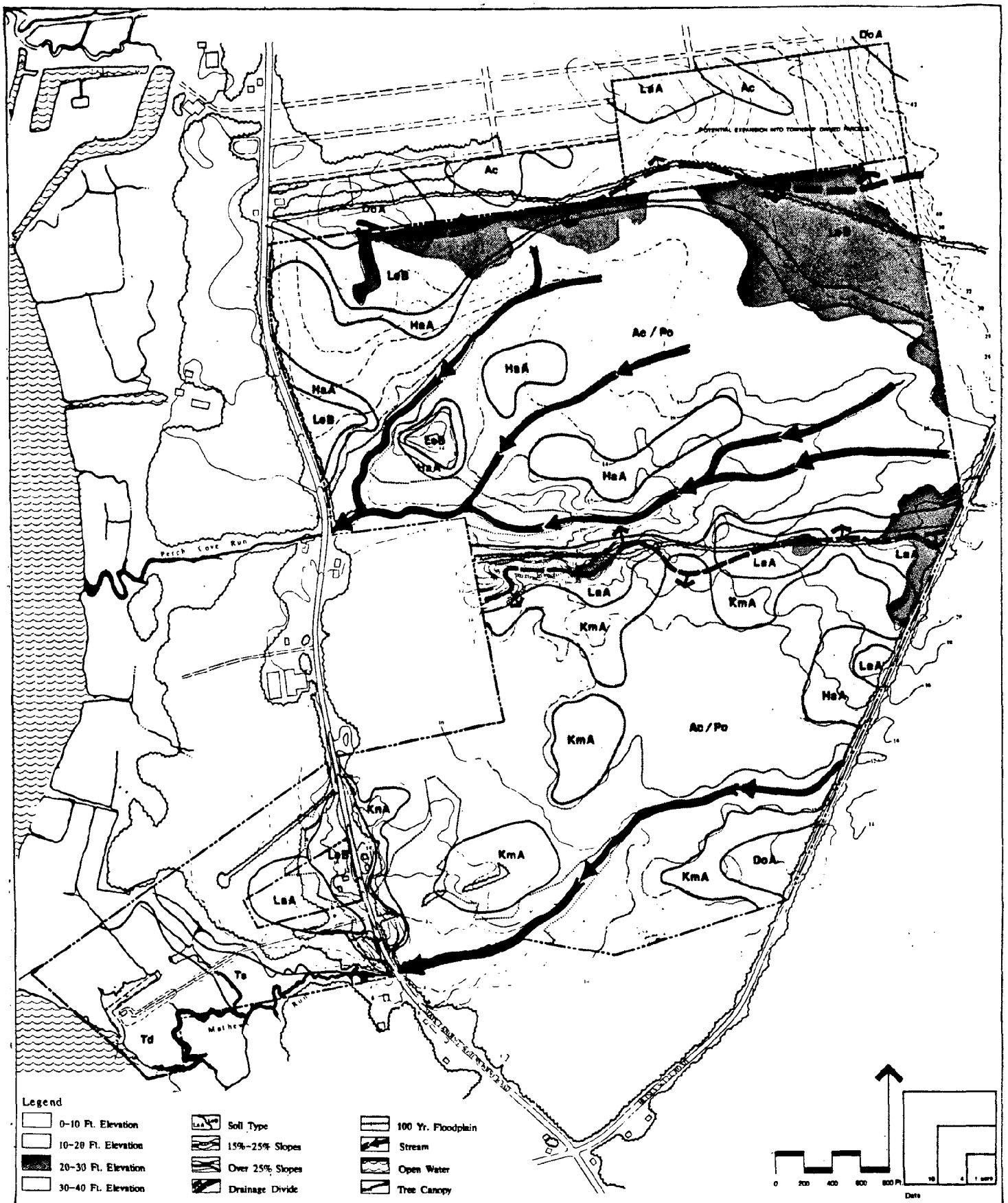
Geology and Subsurface Hydrology

The River Bend site is underlain by deposits of unconsolidated gravel and sand with some clay, typical of the Coastal Plain in New Jersey. These surface deposits form low terraces and plains ranging in thickness from 0 to 50 feet and are called the Cape May Formation. Beneath these deposits is the Cohansey Sand Formation. This formation is a major regional aquifer yielding an estimated 950,000 gallons of water per square mile per day in Egg Harbor Township. Because of its high permeability, the Cape May Formation is often considered part of the unconfined Cohansey Aquifer. (See Map 2)

Hydrology

There are three main hydrologic features on the River Bend site. The lower section has approximately 1200 feet of frontage along a bend in the Great Egg Harbor River. This tidal river is subject to daily fluctuations which inundate the surrounding low-lying areas creating a tidal marsh. The lower section of the River Bend site is dominated by this marsh environment which provides a striking contrast to the adjacent wooded areas. The 100-year floodplain as mapped by FEMA covers nearly all of the land west of Somers Point-Mays Landing Road and extends beyond the road 1800 feet to the east following the channels of Mathews Run and Perch Cove Run.

Two permanent streams occur within the site. Perch Cove Run flows to the west into The Great Egg River through the northern part of the site, and Mathews Run flows similarly along the southern edge of the site. Both streams are poorly defined in the upper section, where they are surrounded by broad, low-lying



PHYSICAL ENVIRONMENT

River Bend Park

the master plan

Map 2

forested wetlands. As the streams enter the lower section of the site beyond Somers Point-Mays Landing Road, a distinct meandering pattern is formed through the marsh, opening up attractive views from points along Somers Point-Mays Landing Road.

Topography

The site generally has gently undulating topography with elevations ranging from 0 to 10 feet above sea level in the lower section and from 2 to approximately 40 feet in the upper section. The higher elevations occur along a series of parallel ridges running east-west across the site. The highest ridge borders the northern edge of the site and can be clearly observed as it crosses Betsy Scull Road just north of the site. The second ridge bisects the site creating a drainage divided between Mathews Run to the south and Perch Cove Run to the north. A cluster of relatively steep (15-25%) knolls exists at the western end of this central ridge creating a unique environment of varying vegetation patterns. The depressions between these knolls have been colonized by drifts of blueberry while the knolls themselves remain more open and park-like with oak canopy and thin understory. Both ridges have narrow dirt roads running along their crest.

Soils

The soils on the River Bend site can be categorized as either hydric, transitional, or well drained. These categories are closely related to the topographic position which the soils occupy on the landscape.

Hydric Soils- There are three hydric soils on the site which occupy the lowest position and are found in the low, nearly level plains associated with the streams. Atsion Sand (Ac) dominates a central area along Perch Cove Run and has a seasonal high water table from 0-12 inches below the surface. This poorly-drained soil may sometimes have a clay substratum occurring at 2 to 4 feet creating a perched water table. This condition provides potential for the creation of groundwater ponds but precludes most other types of development. Pocomoke Sandy Loam (Po) is found alongside the Atsion soils and also dominates a broad area adjacent to Matthews Run in the upper section of the site. This soil has a seasonal high water table at the surface from December through May, dropping off to about 2 feet in the summer. Pocomoke soils are classified as being very poorly drained and are unsuitable for development due to periodic flooding. The third hydric soil, Tidal Marsh (Td, Ts), occupies most of the lower section of the site along the river where tidal fluctuations in water level occur daily. Development is possible only by filling, but even then storm flooding poses a potential constraint for development.

Transitional Soils - There are three transitional soils on the site, these soils occupy intermediate position on the landscape and are classified as somewhat poorly drained to moder- ately well drained. Hammonton Loamy Sand (HaA) occurs across most of the site as a belt separating the hydric soils from the higher well-drained soils. With a seasonal high water table of 1-1/2 to 4 feet, this soil is moderately suitable for septic systems and limited development. These soils usually have a fair natural fertility and low or moderate content of organic matter which is desirable for turf and landscaped areas. Klej Loamy Sand (KmA, KnA) is similar to Hammonton soils although lower in natural fertility and organic matter. Often the soil becomes wet if the surface vegetation is removed and occasionally a clay substratum is present at a few feet below the surface creating a constraint for septic systems. Lakehurst Sand (LaA) is present on nearly level slopes along the lower ridges and typically is moderately well drained. These soils have a seasonal high water table of 1-1/2 to 4 feet, are highly acidic, low in natural fertility, and moderately suitable for septic systems.

Well Drained Soil - The two well-drained soils on the site occupy the highest positions on the site. Lakewood Sand (LeB) is classified as excessively well-drained making it low in available water capacity and natural fertility. The seasonal high water table is greater than 5 feet and only a slight constraint exists for septic suitability due to rapid permeability. Downer Loamy Sand (DoA) is located in the southeast corner of the site along Betsy Scull Road. These soils are well-drained, but fertile with a seasonal high water table to within 5 feet. A mature oak-dominated forest occurs on this soil with a more open understory. Because of the quality of this vegetation cover, uses requiring a limited amount of clearing would be most appropriate for this area.

Vegetation

Four distinct plant communities exist on the River Bend site with variations occurring in each. Three occur as part of the lowland complex - those areas dominated by water tolerant species. The remaining communities are members of the upland complex. The lower section of the site is dominated by a salt marsh which is comprised of a number of salt and flood tolerant grasses. *Spartina* spp. dominates in the marsh except where disturbance has occurred allowing *Phragmites* to colonize the area. The marsh community ends abruptly at the tidal edge and a diverse hardwood swamp forest community forms a transitional belt between the marsh and the upland forest. Species found on this hardwood swamp forest include: red maple, bay magnolia, blackgum, sweetgum, American holly, and willow oak, among others, providing a valuable resource visually as well as ecologically. This forest continues along the stream corridors into the upper section of the site where it is found in the broader low-lying areas as well. Slightly higher and adjacent to the hardwood swamp community exists pitch pine forest areas. These areas are dominated by

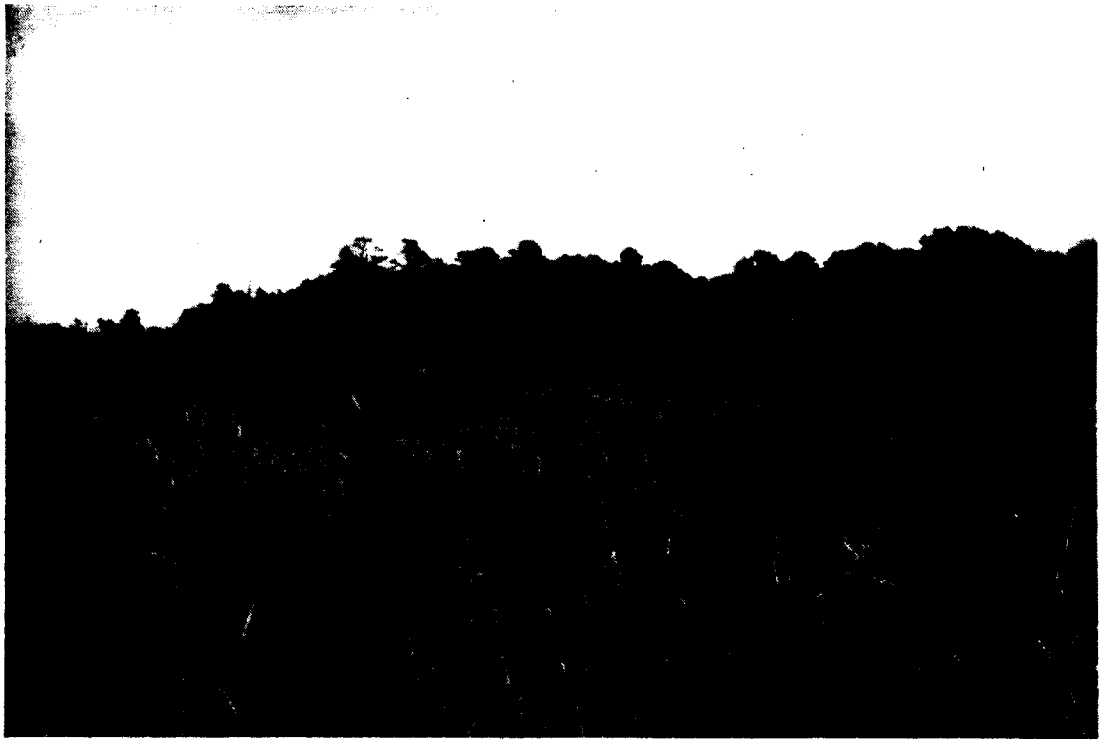


FIGURE 3 Tidal marsh and swamp edge at upland edge

FIGURE 4 Hardwood swamp edge and saltmarsh

pitch pine and contain a dense understory shrub growth of highbush blueberry and greenbriar. Also included in the lowland complex are small pockets of white cedar. These occur where water is present at the surface. Most examples of the cedar swamp forest are located where the streams have been restricted at culverts along Somers Point-Mays Landing Road. Once extensive in New Jersey, white cedar swamps have become a scarce and fragile resource due to logging and lack of management practices. The condition of large clear cut areas required by cedar saplings to grow in full sun is not met when small stands are damaged, leading to succession by other hardwood species.

The upland complex is characterized by two major vegetation associations: the pine-oak forest and the oak-pine forest. Fire frequency is often the determining factor as to which forest type will dominate, with a higher frequency favoring pines. Fires are limited in this area due to the proximity of roads and local communities as well as wet soils. Oak-pine forests tend to dominate the higher elevations and pine-oak forests to intermediate positions where more pitch pine is present.

Wildlife

It is noted that in-depth, on-site survey of wildlife species and habitats has not been conducted for the River Bend site. Such detailed surveys will be conducted prior to detailed design and construction.

Animal species typically occur within a habitat comprised of a favorable combination of environmental features including vegetation, water features, soils, and predator pressure. It is useful to discuss these habitats as they relate to vegetation communities since this is the basis from which most wildlife information is derived.

Pine-oak, oak-pine, and pitch pine forests communities each provide a habitat to approximately 25 species of mammals. Among these opossum, raccoon, red fox, and white-tailed deer are considered common. Hardwood swamps have perhaps a slightly greater diversity among its mammal species while cedar swamps are slightly less diverse. Fewer mammals (13 species) prefer the marsh environment. Agricultural areas lead in expected number of species 927). A similar ratio exists in the numbers of breeding bird species found in each of these habitats. On the site, the descending values of habitats in terms of breeding bird species would be hardwood swamp - 41, oak-pine forest - 40, pine-oak forest - 34, inland marsh - 18, pitch pine lowland - 15, and cedar swamp - 11. The total number of bird species utilizing these habitats is much greater, over 100 in each of the first

FIGURE 5 Typical upland forest showing pine and oak canopy and blueberry dominant shrub layer

FIGURE 6 Typical upland forest with closed canopy and thin park-like shrub layer

four habitats previously listed. Some commonly observed bird species include: Carolina chickadee, rufus-sided towhee, catbird, cardinal, wood peewee, grackle, common grow, prothontary warbler, and swallows. Isolated marsh areas also provide habitat for many endangered bird species including bald eagle and osprey, although these have not been observed on the site.

Reptile and amphibian habitats are highest in water areas (19 species) and relatively consistent in other areas (12 - 17 species).

Other areas worthy of mention as wildlife habitat are edges or transition areas between distinct habitats, corridors such as streams and roads, and large continguous areas providing sufficient range to support a population of certain species. Although no rare or unique wildlife was observed during field work on the site, it is a goal of the park to remain sensitive to the needs of existing wildlife and to enhance the wildlife by the conservation and creation of favorable habitats. A more comprehensive list of expected species in this region is appended.

Zoning

The River Bend site is zoned by Egg Harbor Township as Conservation-Recreation-Wetlands (CRW) and Rural-Agriculture (R-A). The CRW zone is very restrictive with a principal goal of preserving the existing natural conditions. Residential development is permitted on lots five acres or larger. All of the land of the site west of Somers Point-Mays Landing Road is zoned CRW. The remainder of the site is zoned R-A permitting single-family detached dwellings (minimum lot size of 100,000 s.f.), churches, farming, golf course, horse farms, and private non-profit institutional uses.

Utilities and Infrastructure

Located in a rural area, the River Bend site has limited access to municipal utilities and infrastructure. Currently planned expansion of the municipal sanitary sewer system will not include the River Bend site. All uses in the River Bend Park will be serviced by on-lot septic systems or alternative systems (i.e., clivus).

No public water supply is available to the site, but good quality supplies are readily available from the aquifer underlying the site. Well yields for existing residential development in the area are adequate.

Electricity is available to the site from Atlantic City Electric Company. It is understood that the demand required for initial phases of River Bend Park can be supplied by the utility company.

FIGURE 7 Existing Somers Point - Mays Landing Road through proposed parkland

FIGURE 8 Betsy Scull Road along site's eastern boundary

Roads

The River Bend site is bordered by two public roads. Somers Point-Mays Landing Road (Route 559) is currently a two-lane, County road which runs through the park in a north-south direction (3403 feet of frontage). Proposed improvements will widen and resurface the road adding a bicycle lane to an enlarged shoulder. The road is a major link between shore communities and Mays Landing. It is well traveled particularly in season and currently has a posted speed limit of 45 MPH through the park site.

The other major road serving the site is Betsy Scull Road. This road intersects Route 559 south of the park site and runs in a northeast-northwest direction along the site's eastern edge (300 feet frontage). Betsy Scull Road is an unpaved dirt road with one lane each direction. No plans exist to upgrade this township road.

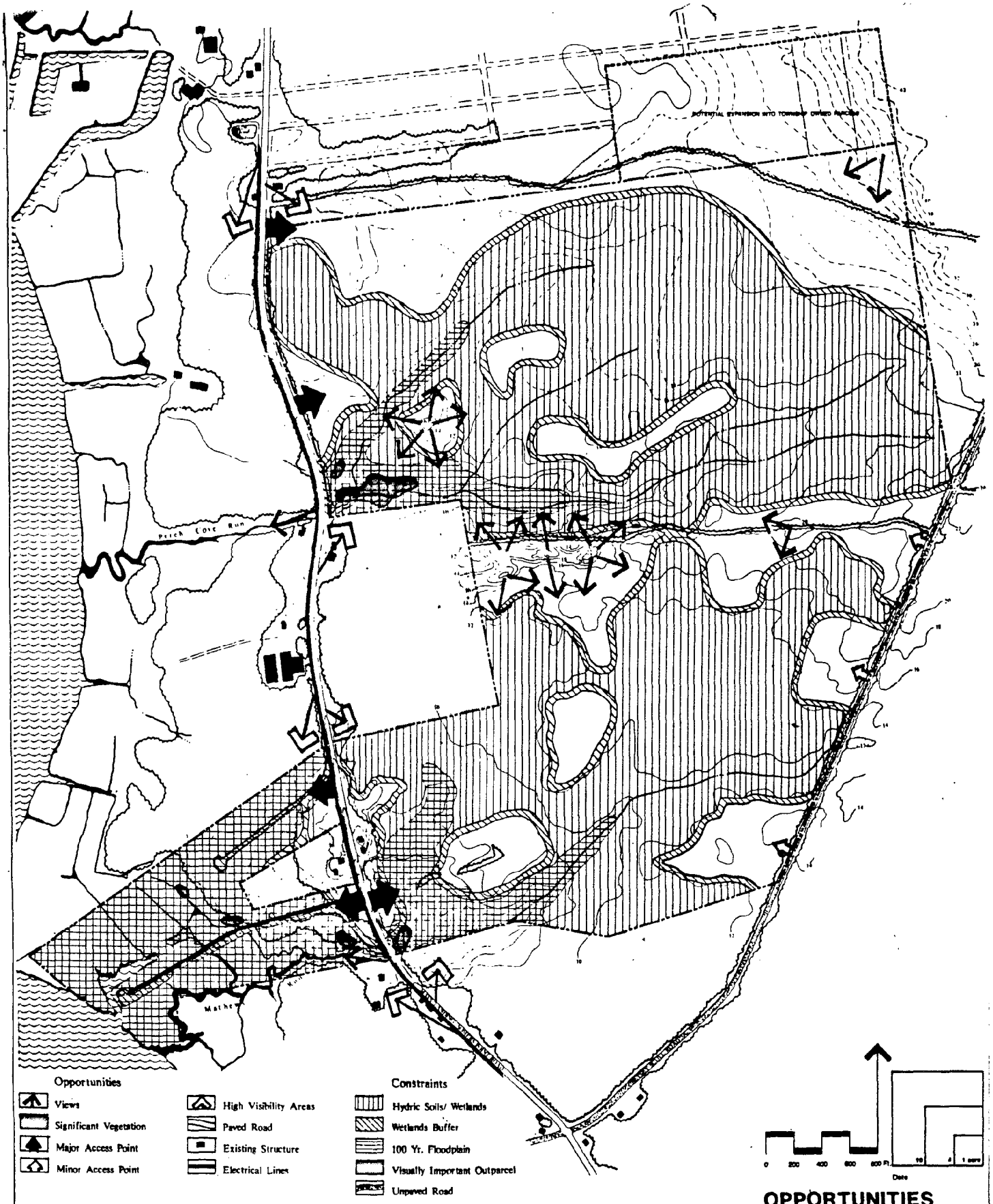
B. Site Suitability

On the basis of the foregoing inventory and analysis of natural and man-made conditions, the site was evaluated in terms of its capacity and suitability for passive and active recreational development. Site suitability is commonly expressed as opportunities for and constraints to development. (See Map 3)

The River Bend site offers an excellent opportunity for public access to the Great Egg Harbor River and to a large natural areas ranging from open water and wetland to upland pine-oak forest. Access to the water from Somers Point-Mays Landing Road is direct via a short (1800 feet) dirt road that was built prior to the County's acquisition. The road ends in a dirt parking lot, also previously constructed. A short (150 feet) channel leads directly from the shoreline abutting the parking lot into the Egg Harbor River. This channel is currently silted in requiring dredging for boat access, particularly at low tide. Classified as disturbed land and uplands by the State, this parking area and entry road provide an excellent opportunity for auto and boat trailer access without additional filling of undisturbed wetland. This location also affords outstanding views of the expansive marsh and the river.

A second access road, also dirt and built prior to County acquisition, leads to a small (1/4 acre) filled pad at the edge of the hardwood swamp forest. Because it exists, the area provides an opportunity for a small activity area with no additional disturbance.

Somers Point-Mays Landing Road (Route 559) provides the principal vehicular access to the park site from both Mays Landing to the north and shore points to the south. This road provides high visibility to parts of the proposed park and should be capitalized upon so the visitor or passerby perceives that he or she is



OPPORTUNITIES AND CONSTRAINTS

River Bend Park

the master plan

Map 3

passing through a County park. Outparcels along this road are important visual images and are, at times, constraints to the park setting.

There are three existing structures within the site. In their current location and condition, these buildings offer little opportunity for park or recreational use. Reuse and relocation of one or more of these structures is possible.

The most evident feature of the site from the environmental analysis is the pattern and amount of upland and wetland. Of the 535 acres, approximately 153 acres is upland. The upland areas occur as a series of isolated islands and ridges scattered fairly evenly throughout the site. The sizes of these islands range from 1/4 to 40 acres. Between these pockets of dry upland are extensive areas of wetland where placement of fill is environmentally damaging and under strict permitting regulations of the state (DEP) and federal government (U.S. Army Corps of Engineers). Only uses which are passive and do not degrade the environment are feasible in these areas. Some limited placement of fill will be required where it is essential to connect these islands for vehicular access. Additionally, a buffer of 50 feet between the wetlands and uplands is advocated to protect the wetlands from impact associated with upland uses and activities.

III. USER NEEDS AND PROGRAM

The success of a recreation facility is often determined by its design, location, and the extent to which it meets user needs. It has been clearly recognized in the Outdoor Recreation Plan of New Jersey and the Atlantic County Open Space Plan (February 1985) that Atlantic County is faced with a deficiency of recreation facilities and a rapidly rising population, in part due to growth stimulated by the casino industry. Initial steps towards resolving this deficiency have been taken by the County in the acquisition of the River Bend and Lake Lenape sites and enhancement of existing facilities.

The process used in preparing this Master Plan has begun to address several critical questions related to needs including who are the future users of this park and what specifically are their recreation needs. The answers to these questions have been used to formulate a recreational development program for the park. That program, described below, is responsive to the user needs and the carrying capacity of the River Bend site resulting from the site suitability analysis (See Section II).

A. User Needs

A comprehensive inventory of user needs throughout Atlantic County was not available at the time of this Master Plan study. Recognizing the importance of incorporating user needs into the development program, surveys were made at the onset of the master planning process to supplement and verify the demands identified in the County's Open Space Plan. Through a series of workshops with elected and appointed municipal and County officials and a mail back survey completed by representatives of the Atlantic City Casino Association, a consensus of user needs was compiled.

The findings of the County's Open Space Plan and the results of the survey were very conclusive with respect to the major needs of County residents. Some of the major conclusions are as follows. It is very evident that there is a demand for active and passive recreation opportunities for all age groups particularly senior citizens and teens, handicapped, and all income groups. A strong desire exists for greater public access to The Great Egg Harbor River and shoreline for boating, fishing and viewing. The large proportion of casino workers within the growing population has increased the need for 24-hour per day recreation opportunities and facilities. There is a high regard for protection of valuable natural resources and open space and the use of such resources for passive recreation. Development of a county park at River Bend is viewed in the context of a interconnected network of recreational facilities and green spaces throughout the County.

With regard to specific activities/facilities, the greatest demands were for:

- water access (boat ramps, boat slips, fishing, swimming)
- field sports (softball, soccer)
- court sports (basketball, tennis, racquetball/handball, street hockey, volleyball)
- trails (biking, hiking, exercise, cross-country skiing)
- picnic grounds
- camping areas
- golf course
- ice skating
- stadiums

Also noted, but less emphasized are:

- swimming pools
- amphitheater
- shooting range
- motor bike trails
- football
- horseback riding
- aerobics

B. Development Program

Based on the user needs and the capacity of the River Bend site to support needed facilities, a development program of recreational facilities was formulated. In developing the program, it was recognized that:

1. Not all existing deficiencies were to be met by this new park;
2. Many of the needed facilities were more suitable for the Lake Lenape site or other existing parks in the County; and
3. The demand met by River Bend Park would occur over time in a phased development scheme rather than all at once.

The development program for the park is shown on the following chart with phasing and the amount or number of each facility.

TABLE 1

Development Program

Facility	Phase of Development 1	2	3	4	5	Total
Amphitheater		1				
Archery Area	3					3
Auto Parking (spaces)	145	75	80	200	350	850
Basketball Court	4	8				12
Bath/Warming House	1					1
Beach (acres)	0.5					0.5
Bike Trail (miles)	*					5.8
Boardwalk/Marsh Trail (l.f.)	4,500					4,500
Boat Launch	2					2
Boat Slip	12					12
Boat Trailer Parking (w/car)	32					32
Camping Area (acres)	11					11
Disc Golf Course (18-hole)		1				1
Dock (l.f.)	120					120
Football Field			2	1		3
Handball Court	4					4
Hiking/Exercise Trail	*					
Observation Platform	1					1
Picnic Area - Group Pavilion	4			4		8
Picnic Area - Grove (acres)	2.5	1				3.5
Roadway (linear feet)	*					20,000
1 - Lane (l.f.)	*					5,400
2 - Lane (l.f.)	*					14,600
Shuffleboard/Bocci Court	6/2					6/2
Sledding Hill		1				1
Special Sports Area					1	1
Soccer Field	2					2
Softball Field (ASA)	2	1	4	4		11
Street/Ice Hockey Rink		1				1
Tennis Court	5			4		9
Tot Lots	3	1	3			7
Velodrome/Support Bldg.					1	1
Visitor Center	1					1
Volleyball/Croquet Field	9/3			3/1		12/4

*Portion build in each phase of development

IV. THE MASTER PLAN

A. Purpose

The Master Plan is a guide for allocating land uses to those portions of a site that are suitable for the proposed development. The plan for River Bend Park is based on a specific development program which address the passive and active recreation goals posed by Atlantic County for this 535 acre site. The Master Plan is a site-specific concept plan which provides the basis for detailed planning, field investigations, budgeting, phasing, final design, and implementation. The plan establishes the principles for the future use of the site and serves as a guide for management of the site and for preparation of schematic design, preliminary and final design documents for construction.

The Master Plan described in this document as been presented to and accepted by the Atlantic County Planning Commission with preliminary workshop approval and direction provided by the State of New Jersey Bureau of Coastal Resources and Green Acres Programs. It is intended to be a comprehensive and concise statement setting forth courses of action to ensure that the goals of public access, use and preservation are achieved. The plan takes into consideration the comments, concerns and recommendations expressed during the master planning process by interested parties. In some cases the plan recommends additional study be undertaken before any action is taken.

In the master planning process, ten major planning and design principles were established for development of the River Bend Park Master Plan. These are:

1. Maintain the park in predominantly an undeveloped natural state.

2. Prohibit development in the park's wetlands or wetlands buffer.

3. Maximize access to the Great Egg Harbor River for water-related activities.

4. Provide a broad and definitive mix of both active and passive recreation uses, as prescribed by the program.

5. Maximize the park's visibility from Somers Point-Mays Landing Road.

6. Control and minimize public access points into the park to facilitate maintenance and security.

7. Minimize development costs and maximize energy conservation techniques.

8. Provide for flexibility in future revisions to the plan for subsequent development phases.

9. Provide for revenue generating uses to help in financing non-revenue generating uses

10. Provide recreation facilities for a broad cross-section of users, including the handicapped and senior citizens, and for those in need of nighttime facilities.

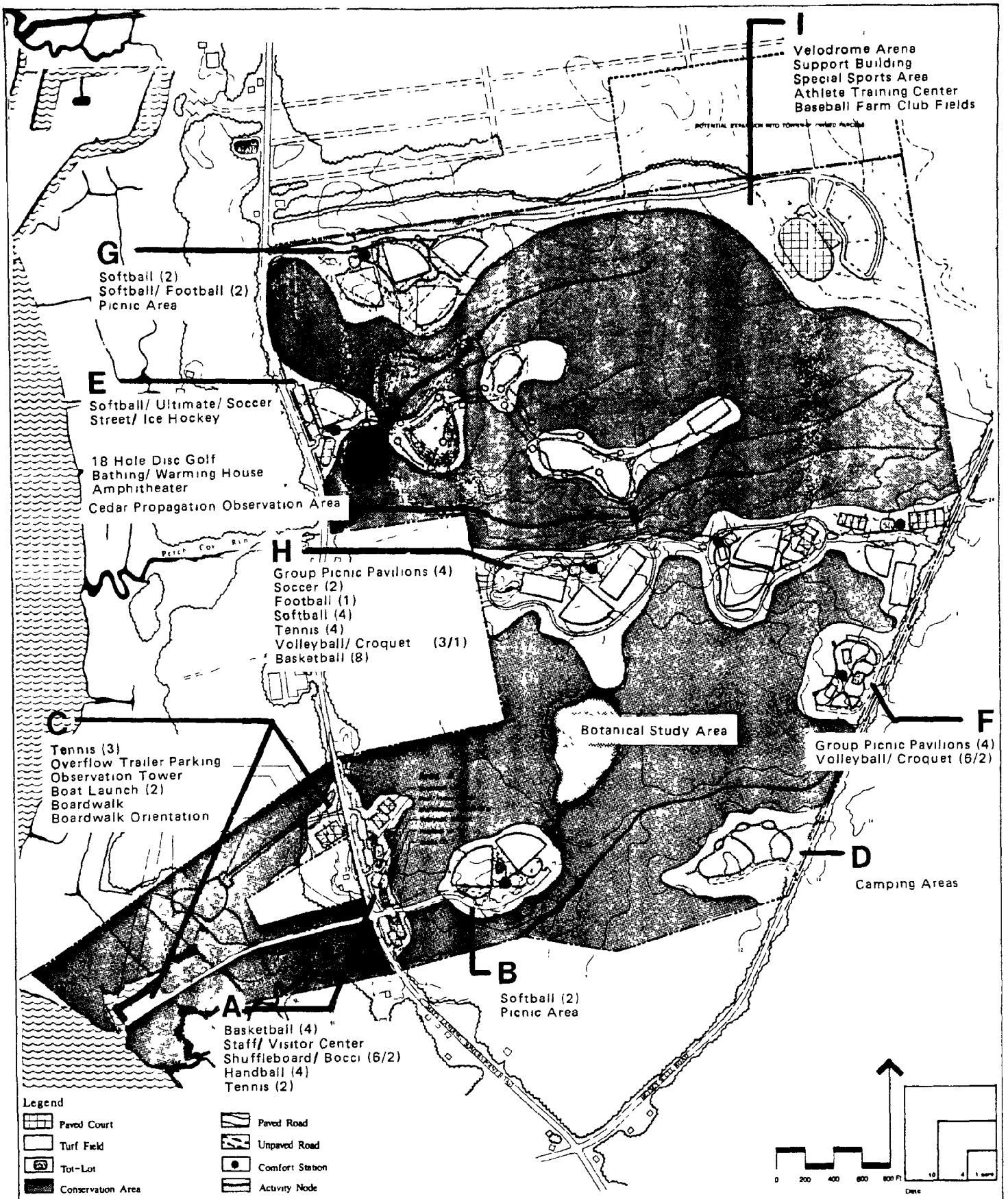
The Master Plan recognizes two initial phases of development which comprise six major activity areas. The plan also reflects a final build-out or capacity for three future phases of development and suggests the form that development could take. The three later phases are subject to future modification because of potential County acquisition of land adjacent to current park boundaries. Map 6 shows the proposed phasing for development of these nine activities area. Following the discussion of the activity areas is a table which summarizes the amount of land in each area and a breakdown of the amount of land proposed to be in active use, passive use, and wetland buffer.

B. Activity Areas

As suggested in Section II of this report, the most usable portion of River Bend site for active recreation is comprised of a series of upland pockets and linear ridges found amidst an expanse of tidal and freshwater wetlands. The character and accessibility of these separated areas varies considerably as does their suitability for different recreational activities and facilities. By virtue of this landscape, recreational development of this site utilizes the concept of many multiple activity nodes spread throughout the park which may be linked by vehicular and/or pedestrian corridors. The Master Plan for River Bend Park is described in terms of nine activity areas labeled A through I. Although each would offer a separate and unique set of recreational opportunities, many of these are linked via a network of trails and park roadways. The following section describes each use area as a visitor may experience it.

Area A (Phase 1) - 6.5 Acres

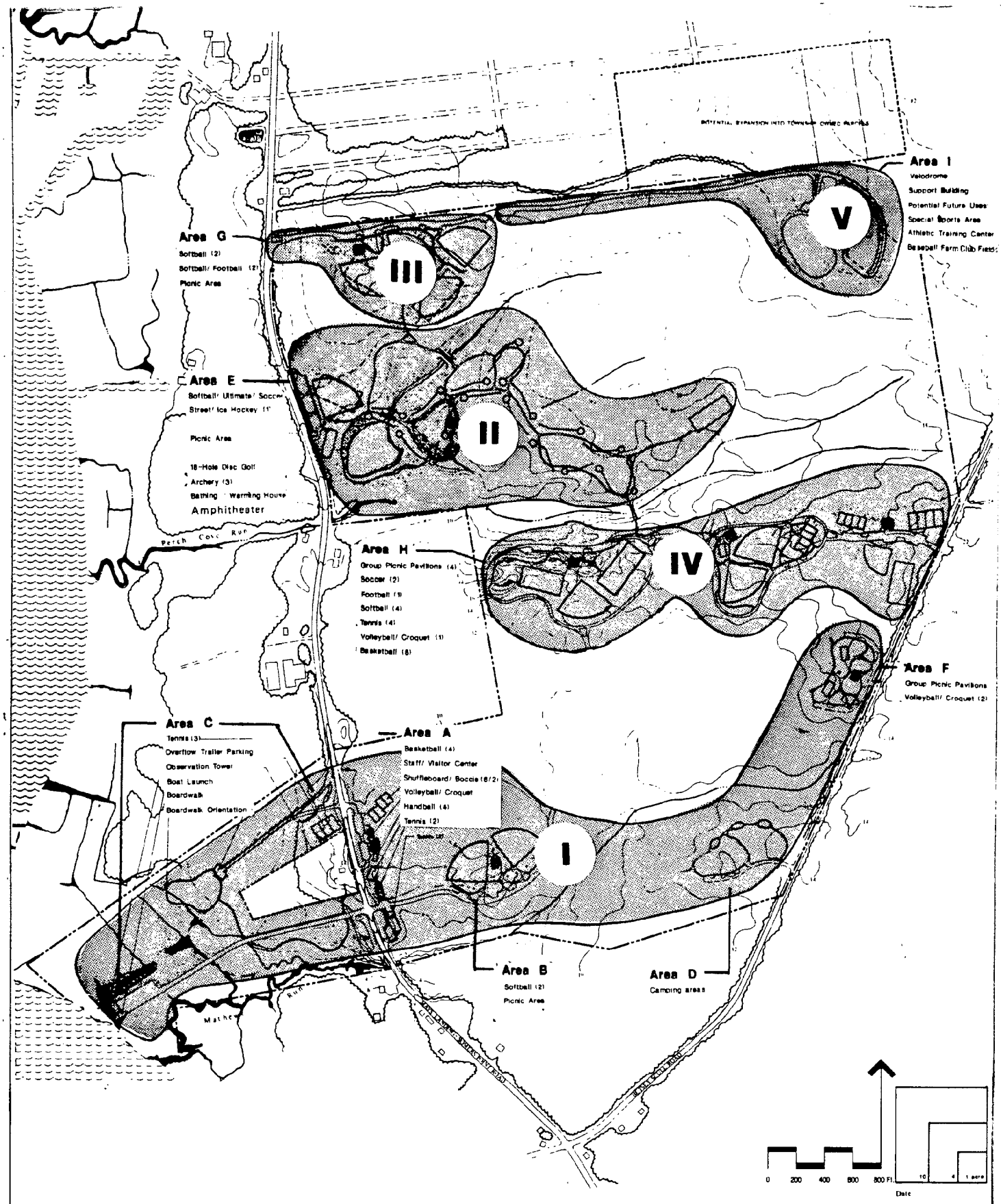
This area is located just east of Somers Point-Mays Landing Road (Route 559) at the southern end of the site on a narrow strip of upland. Facilities include the main entrance, visitor/orientation center, parking, and a variety of recreational uses including: four basketball courts, two tennis courts, eight bocci and shuffleboard courts, four handball courts, a



River Bend Park

the master plan

Map 4



PHASING PLAN

River Bend Park

the master plan

Map 5

croquet/badminton/volleyball field, a tot lot, and picnic area. Locating these facilities in Area A has several distinct advantages over other locations. The area is directly adjacent to a prime window of visibility along Route 559 and directly opposite the access road to Area B, the marina. There is already a large unwooded area allowing for excellent visibility of the visitor/orientation center with minimal removal of existing vegetation, while less aesthetically pleasing facilities such as some of the court activities can be tucked into the wooded areas, yet still easily accessible from the main park entry point. Development costs for infrastructure are minimized while control and security for this site and adjacent development sites are maximized.

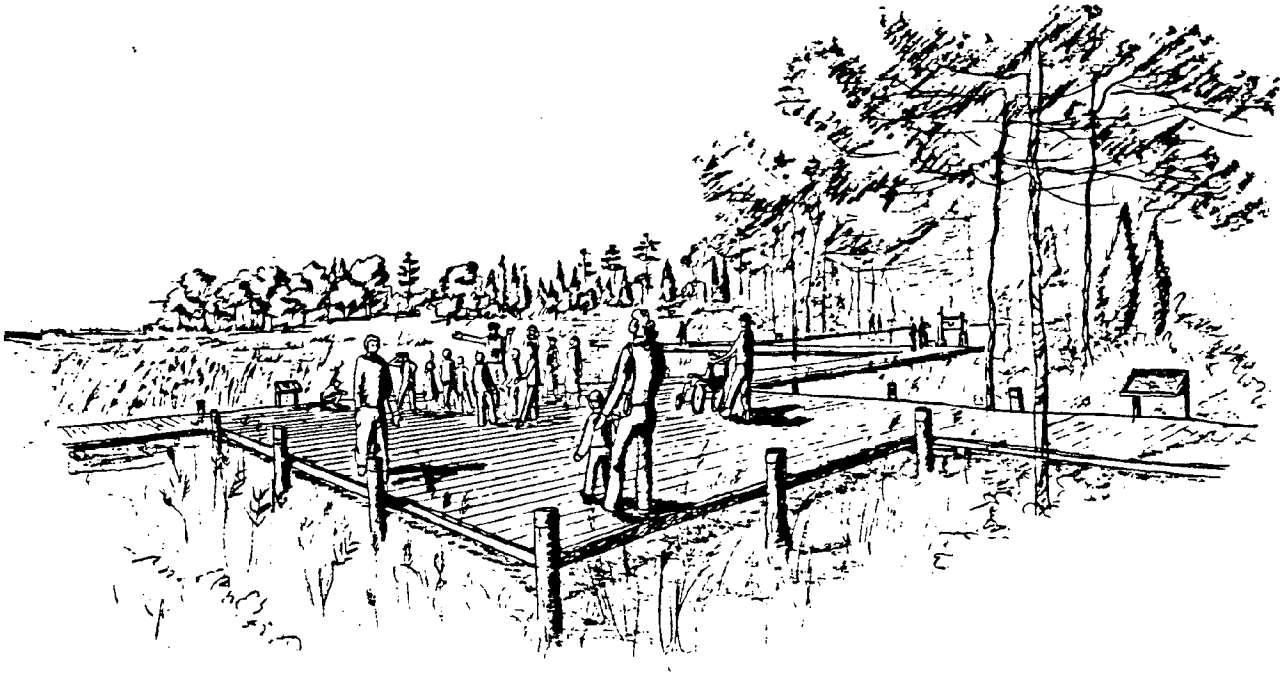
The visitor/orientation center is the information and user distribution hub for recreational activities throughout the park. The center will house administrative offices, security personnel, maintenance facilities, rest rooms, emergency medical facilities, concessions, orientation center, and facilities for the handicapped and elderly. It is also recommended that a component of the facility be a nature study orientation area. Those wishing to learn about the site's unique natural features will find orientation programs here. Information systems at the center will serve a variety of visitors including individuals, student groups, and the elderly.

The center also is the point of departure for a system of interpretive trails which wind eastward into the various forested regions and westward to the salt marsh boardwalk in Area C. The visitor can select nature walks varying in length from a few hundred feet to over several miles. The well marked trails meander through each of the environments of this ecosystem ranging from the wet salt marsh and hardwood swamp forest to the xeric pine-oak forest on the uplands. Self-guided walks and instructive signage enrich the hike with information about the ecology of the region, wildlife habitat, endangered plant and wildlife species, and plant adaptations.

The immediate environs of the center also provide recreational opportunities for the elderly including bocci, shuffleboard, croquet and picnicking, all within close proximity to parking and to the facilities and security of the center. A tot lot also is located here allowing park security personnel and parents to watch children while pursuing other activities. The court facilities in this activity node reflect a mix suggested by the program. Some of these facilities will be lighted, allowing the potential for 24 hour usage, while their location facilitates visibility and a minimization of costs to extend electric lines. Small court recreational facilities of this type are well adapted to a narrow, highly constrained development parcel.

Figure 9

ILLUSTRATIVE PLAN



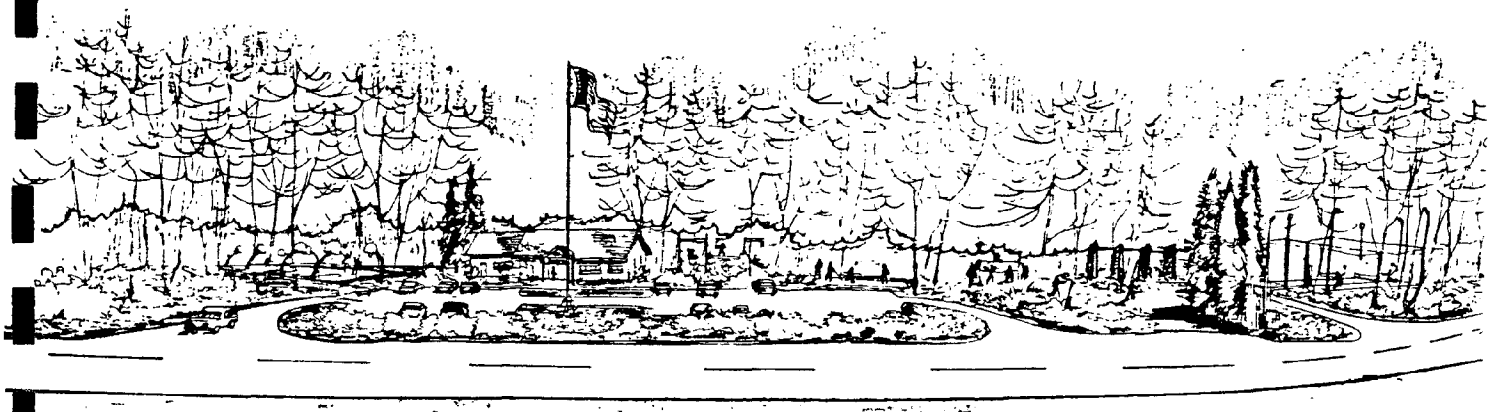


Figure 10

Parking for 70 cars is accommodated in this area. All parking counts mentioned in the Master Plan correspond to the number required to serve the proposed activities, as determined by the National Recreation Association.

It is recommended that pedestrian and equestrian trails through the forested portion of the park to the east of the cetner be installed in either this phase or in combination with Phase 2 development.

Area B (Phase 1) - 9.0 Acres

The second major activity area is located just east of Area A on an upland island is surrounded by wetland. Entry into this node requires a small bridge over wetlands for provision of a road allowing park security and maintenance vehicles as well as private autos and bicycles to access the site.

Area B represents the only parcel in close proximity to the center that is developable for ball fields, and as such is a significant site for this purpose.

Two lighted softball fields which can double as football/soccer fields are located in the activity area. A picnic area, comfort station, and tot lot are also lcoated here, allowing the area to also be used for group activities such as church or company picnics. Access to a ball field for group gatherings is desirable.

Parking for 20 cars is provided in this area.

Area C (Phase 1) - 50.0 Acres

This activity area is one of the most important in the park. Located just west of Area A and the center, on the west side of Route 559, this parcel provides access to the Great Egg Harbor River and to the rich experience of the salt marsh and hardwood swamp forest. Located inthis area is a ofrmer marina at the outer edge of the marsh on a small channel directly linked to the river. An existing narrow strip of filled land provides vehicular access across the marsh to the marina. This former marina is rehabilitated and developed as a new marina where a variety of boating needs are served. These include a 25 foot wide boat launch ramp for trailered boats, new docks and (12) slips for temporary docking by transient boaters, a small facility (7 feet wide by 30 feet long) for the rental of boats, and a wooden observation tower/platform. Approximately 20 feet high, the platform will serve the double purpose of offering an excellent vantage point to view the salt marsh and river while providing a locational beacon for boaters.

The upland area immediately adjacent to the marina is very constrained in size and is used exclusively for parking of

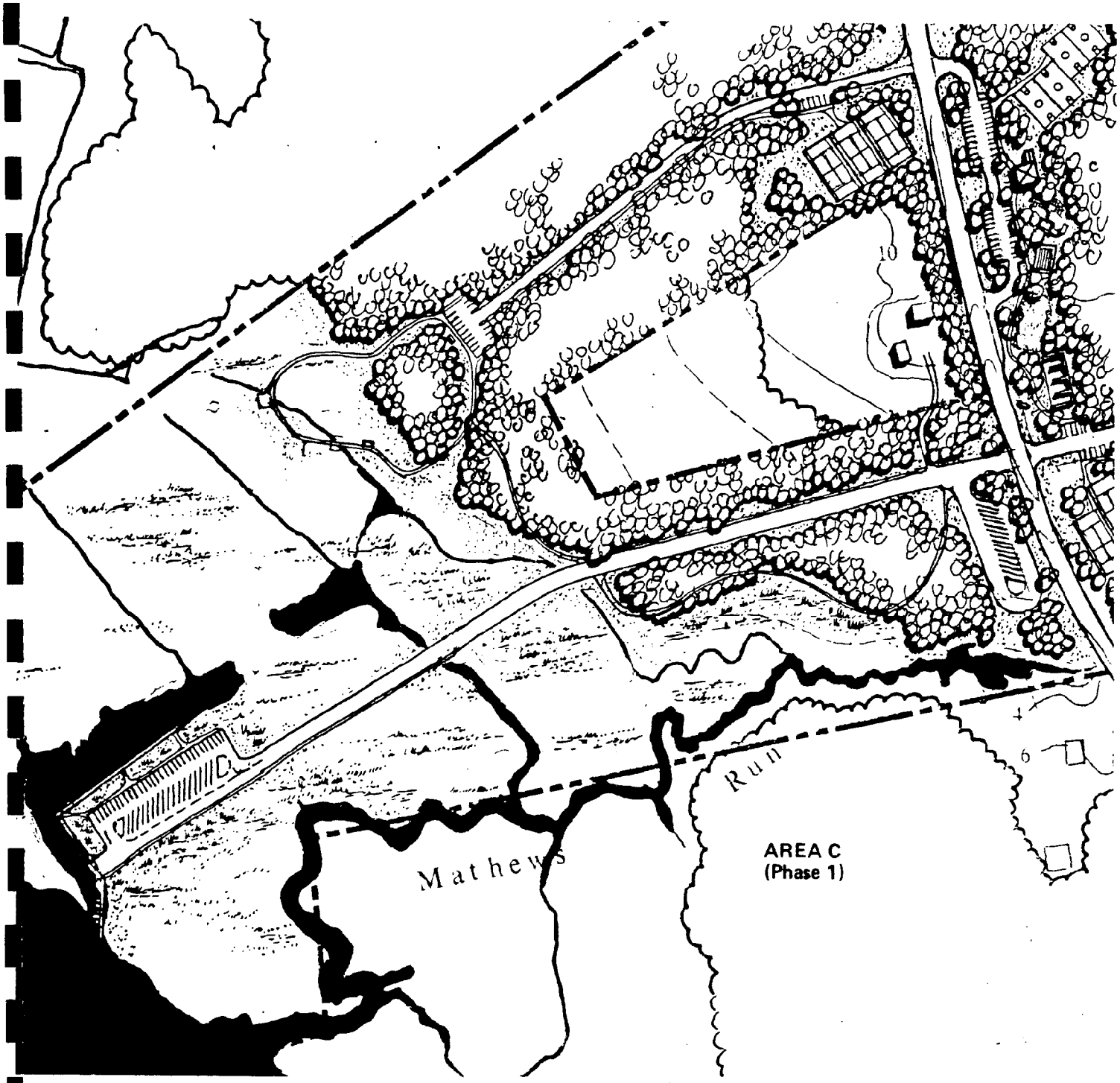


Figure 11

ILLUSTRATIVE PLAN

cars and trailers and for preparing the boats just prior to launch. The area proposed for parking is an area of upland formerly created by filling in the wetland. All of this area is mapped by New Jersey Division of Coastal Resources and disturbed land. Additional rehabilitation will be required to provide parking. Parking in the area allows for 6 cars and 3 cars with trailers. The former access road also is rehabilitated and upgraded for two lanes of vehicular traffic and bicycle and pedestrian lanes. A small area of upland adjacent to Somers Point-Mays Landing Road is also developed for parking for 14 autos and trailers, requiring a five minute walk to the marina.

The formerly dredged channel serving the marina has become filled with sediment and will require maintenance dredging to make the marina operable. No major problems are anticipated in this process although further study for permitting and dredge spoil disposal is required.

Another dirt road is located in Area C north of the marina access road. The road and a small area of upland (5000 s.f.) located in the hardwood swamp edge result from former improper filling of wetland. The road and terminus pad are rehabilitated and developed to provide for vehicular access and parking for 17 cars. This area serves as the starting point for pedestrian access to the boardwalk which meanders through the salt marsh and hardwood swamp edge providing the opportunity for all, including the handicapped and elderly, to enjoy this rich environment.

The boardwalk access road also serves three tennis courts located on the small area of upland adjacent to Route 559. Parking for 6 cars is provided.

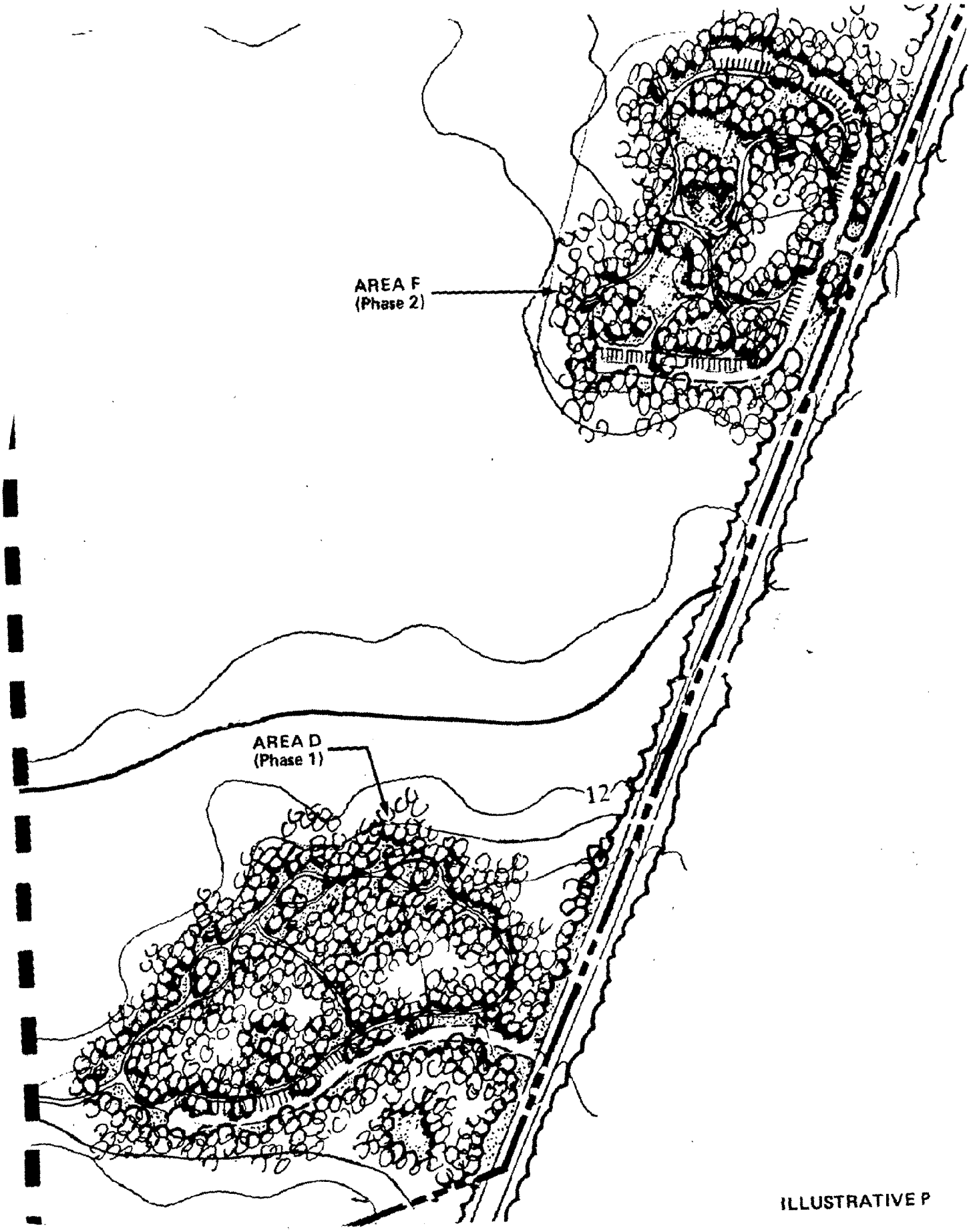
Area D (Phase 1) - 10.9 Acres

This last area of the Phase 1 development is located at the southeastern side of the site in an upland hardwood forest. Activities are limited to a picnic area and primitive camping so that impact on the land will be minimal. Access is by way of the unpaved Betsy Scull Road.

There are currently no plans to pave the road. New internal park roads and parking areas are unpaved. This area is connected to the unpaved trail system within the park.

Area E (Phase 2) - 26.3 Acres

Located in the vicinity of Perch Cove Run just east of Route 559, this area is developed using the same principles applied for Phase 1 development, including maximizing visibility from the highway and minimizing infrastructure costs while fulfilling the needs of the program.



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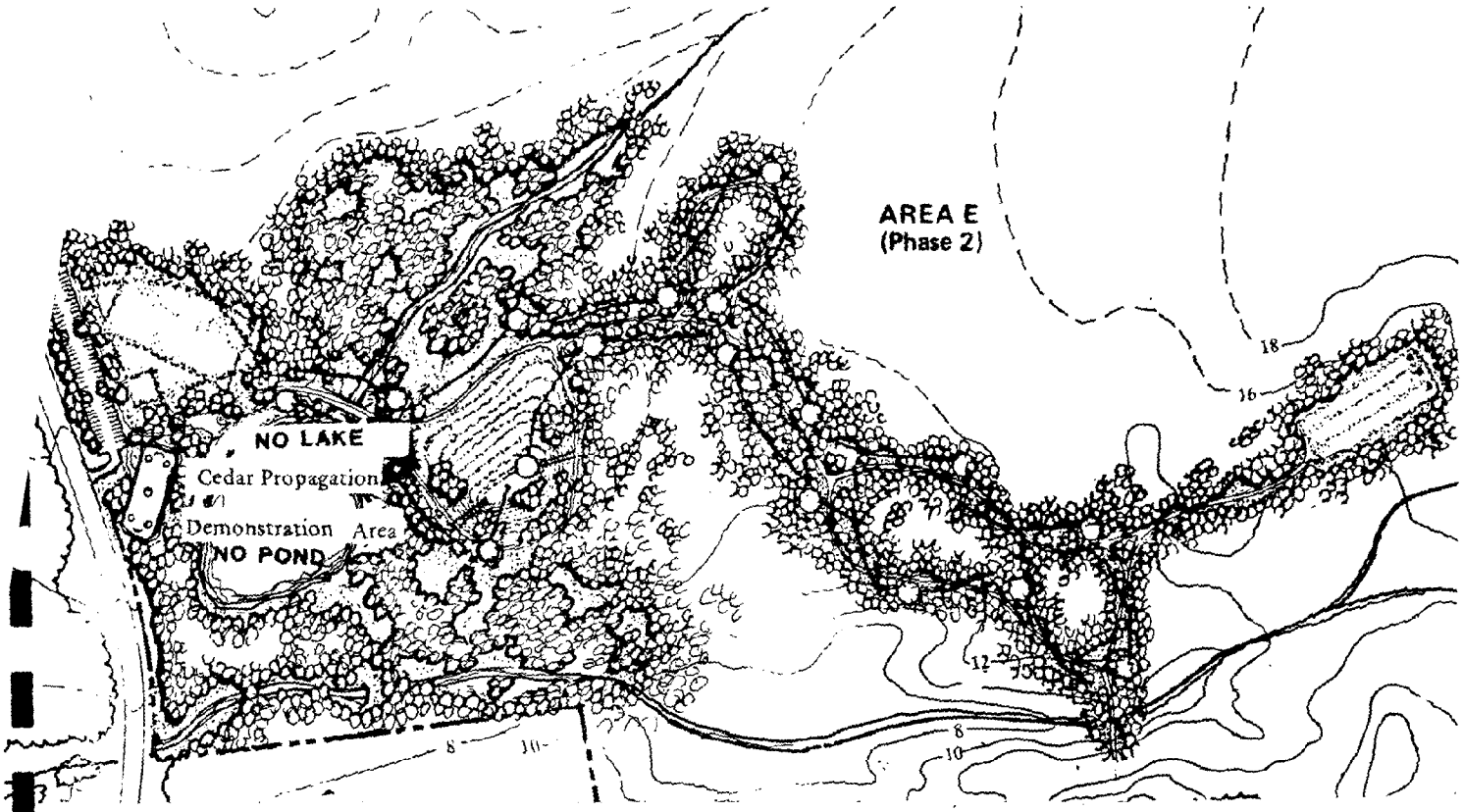

ILLUSTRATIVE PL

The primary active recreation facilities are located on a small area of upland adjacent to the highway. These are a multi-purpose ball field for softball, soccer and football, and a multi-purpose rink for street hockey, and roller skating which can be flooded in winter for ice skating. All facilities can be lighted for 24 hour use.

Also located on the upland is a small building consolidating the uses of comfort station, concession, maintenance facility, bathhouse, and winter warming pavilion.

A small pedestrian bridge crosses the stream and connects the roadside upland recreation complex with the knoll. This bridge is the first in a series of several pedestrian bridges which cross branches of Perch Cove Run and link the several upland islands to the east. Pedestrian trails across the upland islands complete the connections. These trails serve several functions among which are part of the nature trail interpretive system, an 18-hole disc golf course, and finally, pedestrian access to the archery range on the eastern-most island.

Disc golf is a relatively new recreation activity and is rapidly increasing in popularity. It is ranked in popularity just below basketball and just above softball. It is played using a frisbee and relocatable baskets over an 18 "hole" course similar to regular golf but without the intensive land development required by golf. It has an additional advantage in that the course can be developed to be played from a wheelchair as well as by the mentally handicapped. It has proven to be particularly popular among teens and young adults. Disc golf is considered an important and innovative addition to the recreation program for River Bend Park.

Parking for 80 cars is provided in this area.

Area F (Phase 2) - 8.1 Acres

Area F is developed in a very similar fashion to Area D of Phase 1. It is located just to the north of Area D along Betsy Scull Road on an upland parcel and is limited to primitive camping and picnicking. Parking and access is treated similarly to Area D. There are 60 parking spaces provided in Area F.

Area G (Phase 3) - 19.9 Acres

This is the fourth major development parcel abutting Route 559. Located at the northern end of the site on the eastern side of the highway, this upland parcel is developed entirely in open field recreation facilities, comprised of four softball fields and associated football/soccer conversions. Infrastructure is again minimized and the potential for lighting and 24 hour usage can be more economically achieved compared to other potential development sites within the park. Maintenance and security are easily provided by the Route 559 backbone connecting this with the other previous developed areas along the highway. A tot lot and comfort station also are located in this activity area.

Area H (Phase 4) - 43.1 Acres

This activity area is located on an east-west ridge of upland separating the north and south halves of the park lying east of Somers Point-Mays Landing Road.

Relative development costs are higher given the more remote location and the need for longer runs of infrastructure to reach the parcel.

Access is achieved by way of Betsy Scull Road. The road links use areas on the central ridge providing vehicular access and bikeway and jogging loops throughout Area H. The bike lane and jogging trail components of the park are discussed in greater detail below.

Recreation facilities located in this activity area are a mix of ball fields, court games, tot lots, picnic areas, and comfort station as determined by the program. As referenced on the Master Plan (Map 4), these facilities are indicated as the capacity build-out in the area. Given the considerable length of time envisioned before development of the area, these recreational needs may change. Additionally, other circumstances such as acquisition of adjacent parcels by the County may change the thinking regarding development of this area. It is recommended that future study of this area be undertaken at the appropriate time.

ATLANTIC COUNTY
DEPARTMENT OF REGIONAL PLANNING AND DEVELOPMENT
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ATLANTIC CITY, N.J. 08401
(609) 345-6700
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RICHARD E. SQUIRES
COUNTY EXECUTIVE

RICHARD S. DOVEY
DEPARTMENT HEAD

May 15, 1987

Robert B. Piel
NJ Dept. of Environmental Protection
Division of Coastal Resources
CN 401
Trenton, NJ 08625

Re: River Bend Master Plan
Coastal Grant

Dear ~~Mr.~~ Rob. Piel:

Annexed to this letter are five copies of the final River Bend Master Plan. The Plan addresses the comments of you May 6th letter and provides a statement in Appendix "D" regarding the environmental evaluation of the 24 acre parcel along Somers Point Mays Landing Road. This parcel was once considered for possible access to the central recreation core. Under separate cover you will receive project base maps at a scale of 1"=200' which details the majority of environmental features on site.

Just as an update to our acquisition program, I would like to inform you that the County has ordered a land survey by block and lot and a topographic map with two foot contours of the entire site. Our County Counsel has initiated negotiations with the individual property owners and expects to receive response to offers by June.

County staff would like to take this opportunity to thank you personally for your assistance and guidance in the development of this recreation master plan. The Coastal Grant was extremely helpful in assisting the County in establishing the foundation and basis for locating recreation facilities and identifying environmental sensitive areas throughout the 535 acre site. The

funding of the master plan has accelerated the County's effort in establishing a major regional park, with visitor access to the Great Egg Harbor River, within one of our targeted growth communities.

Thank you for your assistance and guidance.

Sincerely,

JOHN F. BRENNAN, P.P.
Supervising Planner

JFB/wpcl

c Richard Dovey, DH, Reg. Plng. & Dvlp.
James Rutala, Director, Div. of Planning
Jeff Curtin, Parks & Rec. Director
Bruce Bechtloff, Office of Green Acres

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Area I (Phase 5) - 32.3 Acres

This area represents the final build-out potential for River Bend Park. It is located in the northeastern corner of the site on a significant area of upland. The area is separated from Betsy Scull Road by a pie-shaped piece of land. It is connected to Area G by a thin ridge of upland. Access is from Route 559 through Area G.

Given the desire to add a recreational facility which will lend distinction and a strong identity to River Bend Park, this area has been earmarked for such a facility. Current recommendations include the addition of a bicycle velodrome, a training facilities for a baseball farm club, special athletic training center, and/or golf course (with additional land).

A strong possibility exists for adding adjacent property to the north of this area, most of which is developable upland. Additional land beyond that shown on the plan is required for an 18-hole golf course, although a nine hole par three course could be achieved.

A velodrome is shown on the plan in the southern portion of the area with associated parking to the north. Should acquisition and development of the parcel to the north become a reality, it is recommended that parking requirements for the facility be considered in light of a shared parking approach using the velodrome parking lot.

It is entirely possible that this section of the park could be developed before the previously discussed Phase 4, and it is therefore recommended that future planning take this possibility into consideration.

C. Sitewide Considerations

Treatment of Route 559, Somers Point-Mays Landing Road

This highway is the major access route to the park and as such becomes a significant introduction to the park. The road also represents the major spine road within the park linking the early phases of development. Accordingly, the park treatment along the highway should lend identity to the park and represent the park environment along the length of the road. This should be achieved by the use of distinctive lighting, signage, landscaping and devices such as wooden bollards and guard rails. Particular attention should be paid to signage of the north and south entry points to the park along Route 559 including its intersection with Betsy Scull Road just south of the park site.

In addition, several private residences exist adjacent to and within the park boundaries along the highway. It is important that means be explored to improve the appearance of these

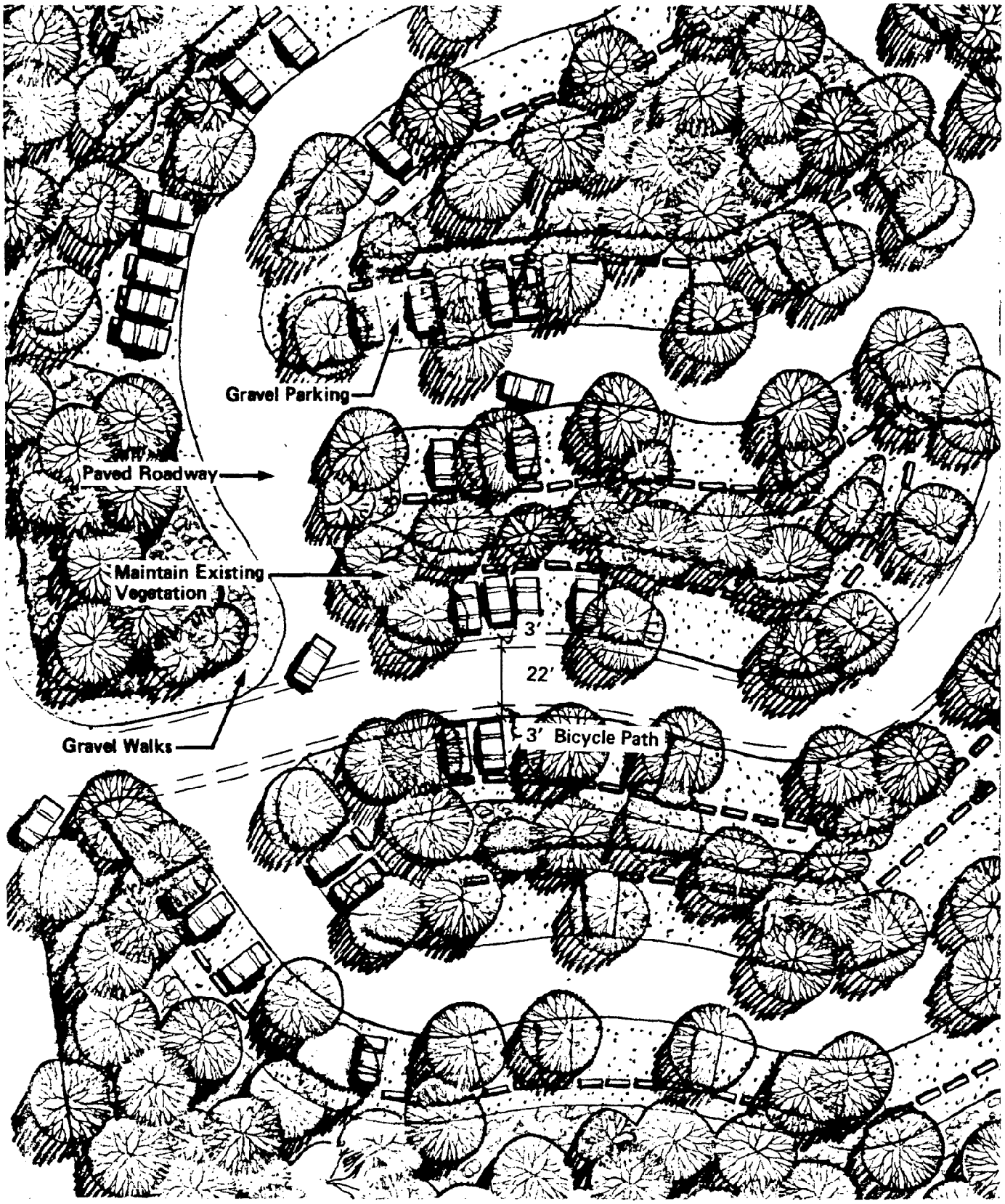
residences by the use of easements, fences, landscaping, and/or facade treatments in order to control the visual quality of the park environment. Access points along the highway into park roads and parking lots were reviewed in consideration of acceleration/deceleration lanes. It is recommended that only one deceleration lane be provided immediately adjacent to the visitor/orientation center in Area A. It is also recommended that the highway speed limit be reduced to 25 MPH throughout the park zone.

Interior Roads and Parking

Figure 14 shows the prototypical development for roads and parking. Cartways are 22 feet wide with a 3 foot wide bike lane on each side. Parking is unpaved gravel and discreetly located between trees to reduce the destruction of vegetation.

Experience reveals that jogging trails are used primarily when adjacent to roadways. When located in remote areas, individual joggers sometimes feel uneasy and refrain from using the trails.

Bike lanes are being added along Route 559. River Bend Park is envisioned as being a regional biking destination and a facility where bikers and families may come for recreational biking on low traffic internal bikepaths meandering though a natural setting. Prototypic bike trails are shown on the following page. Numerous opportunities exist in River Bend Park to achieve this recreational activity. The most significant realization of this goal will be the development of the biking loop into the interior of the park in Phase 4.



PROTOTYPICAL PARKING TREATMENT
Example: Velodrome Area

Figure 14

TABLE 2 USE AREA AND ACREAGES

Area	Upland			
	Active	Passive	Wetland Buffer	Total
A	4.24 acres	0	2.24	6.48
B	7.0 in wetland	0	2.5	9.5
C	6.59	0	0.8	7.39
D	0	8.52	2.39	10.9
E	7.57	9.36	9.34	26.27
F	0	6.33	1.72	8.05
G	17.16	0	2.7	19.86
H	20.77	2.19	10.78	33.74
I	28.48	0	3.79	32.27
Totals	91.81	26.4	36.26	154.47

Total acreage of site = 535

V. STATEMENT OF COMPLIANCE

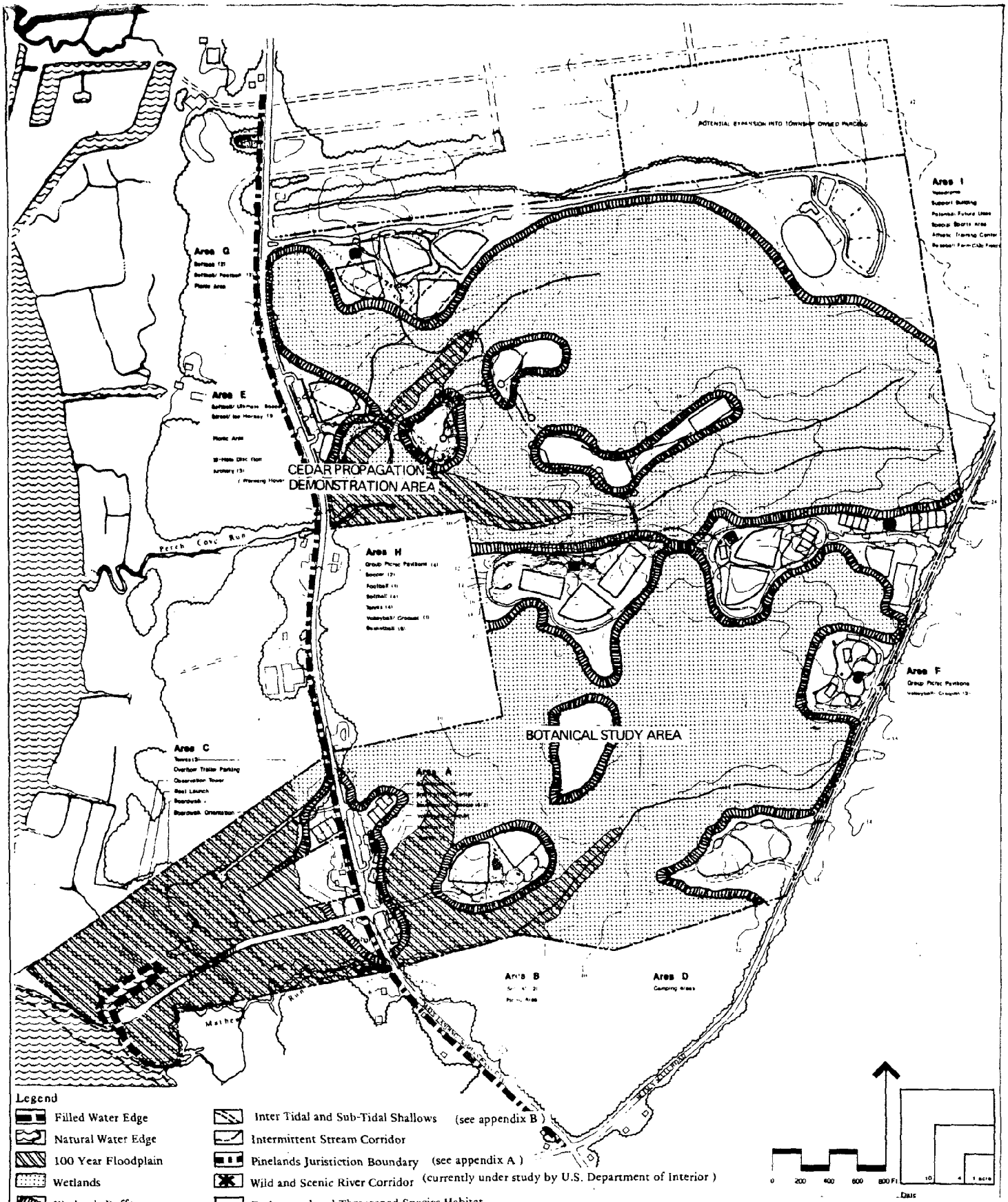
This section summarizes the important issues for the River Bend Park Master Plan as related to compliance with the use and development policies of the Department of Environmental Protection (DEP). The following material directly addresses The New Jersey Department of Environmental Protection Rules on Coastal Resources and Development, N.J.A.C. 7:7E-1.1 et seq. as of February 3, 1986.

This summary references the policy sub-chapters and combines several related sub-chapters for simplicity. The sub-chapters not addressed are not applicable and will not be affected by the park development.

3.10 Marina Moorings
3.16 Filled Water's Edge
4.10 Man-made Harbors
4.11 Boat Ramp, Docks and Piers (Relocational), Moorings

The River Bend Park marina development will be adapted to a former marina, filled access road and parking area, boat ramp. and dredged channel. The new marina will be limited in scope. The existing structure will be removed to maximize parking for autos and trailers. The boat ramp will be rehabilitated and paved. New piles and fixed docks will be installed to allow for queuing of boats as well as a few transient slips and a small boat rental operation. Shore stabilization will be achieved by rip rap on fabric, with minor bulkheading necessary in the vicinity of docks and boat ramp. Maintenance dredging of the existing channel will be required. No new fill areas are created.

1.6 Mitigation
3.15 Intertidal and Subtidal Shallows
3.18 Natural Water's Edge - Floodplains
3.25 Wetlands
3.26 Wetlands Buffer
4.8 Water Areas
4.11 Acceptability Conditions for Uses (e), (f) and (g)
8.7 Stormwater Management



SPECIAL AREAS MAP

River Bend Park

the master plan

Map 6

The wetlands buffer is maintained at a width of 50 feet throughout the park. It is proposed that an examination of various grasses be explored for use on turfed recreation fields, with the goal being to avoid or minimize use of lime, fertilizers and herbicides in the maintenance of lawn areas adjacent to wetlands buffers. Other measures to divert, store, and neutralize stormwater from these lawn areas should be explored. Consideration also should be given to shallow wells which draw irrigation water from under the upland turfed areas and redistributing the water to those areas.

Excavation of floodplain and adjacent wetland is proposed for the section of Perch Cove Run just east of Route 559, allowing for the development of a two acre freshwater pond which should enhance open water habitat. The dredge spoils are to be placed on an adjacent upland knoll. Further testing will be required to verify the size and feasibility of the pond and the appropriateness of the disposal site.

3.34 Historic and Archaeological Resources

On-site inspection of the property revealed no indication of historic or archaeological resources.

If such resources are encountered during the course of detailed design and development of the park, a determination will be made of their value. With the DEP concurrence, these will be dealt with in the appropriate manner prior to park development.

3.36 Endangered or Threatened Wildlife or Vegetation Species Habitat
3.37 Critical Wildlife Habitats

An in-depth survey of wildlife species and wildlife habitat does not currently exist for the site. Insufficient on-site inspection was performed during preparation of this Master Plan to confirm the presence of endangered or threatened species. However, an evaluation of the property's ability to support endangered or threatened vegetation and wildlife and critical wildlife habitat suggests that some species and critical habitat could be present. A detailed, on-site survey of endangered or threatened wildlife species will be conducted for each phase of development prior to initiating final design and construction.

According to the January 17, 1984 list of endangered and threatened wildlife in New Jersey as identified in the Endangered and Nongame Species Program in the Division of Fish, Game and Wildlife, nine species listed have potential habitat on the site. Of these, the Pine Barrens treefrog, the Eastern tiger salamander and the bog turtle are listed as endangered.

Those listed as threatened include the northern pine snake, red-shouldered hawk, barred owl, great blue heron, corn snake and red-headed woodpecker. Of the nine species having the potential to inhabit this site, the Pine Barrens treefrog and the northern pine snake are most likely inhabitants. The pine snake would be found in the mixed oak upland and the treefrog in the small Atlantic white cedar swamp area.

Should the great blue heron inhabit the site, it would be associated with the open water habitats. Should the Eastern tiger salamander inhabit the site, it too would be associated during its limited time above ground to breed to the open water areas before returning to its subterranean habitat in the adjacent oak-pine forest.

Analysis of the proposed plan reveals a minimal development impact on the site in general, and a negligible impact on the potential critical habitat areas which are the streams, river, salt marsh, and wetlands.

3.38 Public Open Space
8.11 Public Access to the Waterfront

River Bend Park is a new 535 acre addition to the Atlantic County parks and open space system. As such, it will provide a diverse mix of public recreation facilities serving all segments of the population of the region. The park will also be predominantly maintained in its natural state thereby preserving the existing environment and making it available to the public by pedestrian and equestrian trails.

A major feature of the new park will be the provision of a rehabilitated marina and boat launch area providing ample public access to the Great Egg Harbor River.

3.42 Pinelands National Preserve and Pinelands

River Bend Park is located in a Limited Growth Region, the Great Egg Harbor River Region. The proposed natural area preservation policy for the park is consistent with the Pinelands Protection Act.

3.44 Wildlife and Scenic River Corridors
4.8 Medium Rivers, Streams and Creeks

The Great Egg Harbor River has been proposed to receive the Scenic River designation and is currently under review. The proposed treatment of the park relative to the river, salt marsh, swamp hardwood edge, etc. is consistent with the DEP policy.

The Great Egg Harbor River is designated as a medium river. Perch Cove Run and Matthews Run are designated as streams. The proposed use of and development related to these waterbodies will require a waterfront development permit and a wetlands permit from the Division of Coastal Resources.

VI. IMPLEMENTATION

Recreation activities and facilities contribute to the health and welfare of the individual and of society and add to the quality of life of the area. They satisfy our need for relaxation and a change from daily tasks. The growing demand for outdoor activities is stimulated by the sedentary work in our service-oriented society. The pursuit of personal health and physical fitness have become top priorities as evidenced by a huge surge in active sports participation, jogging, biking, and exercise programs. Playgrounds, ballfields, parks and open space areas not only serve people with active and passive recreational activities but also preserve needed open space in areas of growth and congestion. These inherent values justify the involvement and expenditures of government in recreational facilities.

Recreation does not just occur on the playground or the ballfield. A view of a dramatic sunset over the water and boats floating by can give as much pleasure to some people as a game of golf to others. Therefore, in planning for recreation for Atlantic County, it is necessary to consider the varied needs of different individuals for passive and active recreation and for simple to strenuous activities, and to plan for seasonal changes which can be accommodated by the facilities and open spaces.

Public recreation service is concerned with methods of providing effective recreational opportunities to the citizens of a community at the least possible cost and without duplicating the functions of other agencies. Development of recreational facilities and programs can require large expenditures of revenues. The cost of recreation depends not only on the expense of the land and the facilities, but also on the costs of maintenance and operations, and all of these are costly. The history of park development indicates that rarely do parks pay for themselves or operate on a profit basis. Because it is hard to calculate what an amenity costs, one has to make a governmental decision as to how much an amenity is worth. We are in an era of limited resources and strict accountability. It is critical to develop well thought out objectives and priorities as well as alternative strategies for revenues and resources management. With careful planning and fiscal management, some degree of self-sufficiency can be achieved and operating costs can be reduced.

This report offers workable strategies for project implementation, first developing a workable plan, establishing priorities and then generating the needed revenues for capital expenditures and operating costs.

A. GOALS AND OBJECTIVES

A primary goal of the Atlantic County Recreation Master Plan is to develop a county recreation facility that will attract residents as well as tourists to the mainland by providing varied and unique recreational opportunities that will contribute to the park's unique identity. Among the objectives for achieving this goal are (1) to provide diverse high-quality facilities, (2) to meet the specific needs of special user groups, and (3) to obtain a high degree of economic self-sufficiency. Among the user groups with specific needs are the thousands of employees of the casinos who work in shifts and may require up to 24 hour service, and the elderly and handicapped with their own special needs. Undoubtedly there are other groups with their own specific needs, as well, and each should be identified.

B. PRIORITIES AND PHASING

All of these needs can be provided for if they are of a sufficiently high priority to justify the costs. Priorities related to a financial plan should be established according to need, money available, operating budget and development costs, as well as citizen interest. Financial limitations demand that total development of Riverbend Park be directed by a long-range facilities plan. Additional facilities will be developed in increments as funds become available. The section of the park along the roadway and the water access (marina) area will be the first phase developed for active recreation. This early stage will include the least expensive activities and mixed uses of the area. As funding strategies are implemented to augment County appropriations, later phases of the park plan can be developed.

C. FINANCING ACQUISITION, DEVELOPMENT AND OPERATION OF RECREATION AREAS AND FACILITIES

Atlantic County Parks and Recreation Department operates on the budget established for it as a line item in the County budget. Its operational expenses, including personnel, are appropriated from the general revenue, and capital expenditures have also been the responsibility of the County government. Recently the County acquired property for Riverbend Park through the New Jersey Green Acres Program, which provides low interest long-term loans for such land acquisition and in this instance, a 50% grant which substantially reduced the County's cost. The County's debt of $750,000 will be met as part of the County's annual debt service. Additional lands to the north are under consideration for acquisition to expand the usefulness of the existing northern portion of the park. It has been suggested that this land might be donated to the County Park by the Township of Egg Harbor, the owner of the property, but the terms and conditions have not yet been defined.

The acquisition, development and operation of recreation areas and facilities can be financed in a variety of ways, and frequently several methods are combined into a workable financing package or different methods are used for different parts of the program. They can be summarized as follows:

- Appropriations for recreational purposes
- General obligations bonds
- Assistance from the state or federal governments
- Fees and charges
- Special assessments
- Donations
- Public-Commercial Cooperation

Each of these will be discussed in some detail in the following section.

1. Appropriations for Recreational Purposes

As previously discussed, the operating expenses and personnel expenditures for the Atlantic County Parks and Recreation program are predominantly met through appropriations in the County budget. These, in turn, are raised through taxation of the residents of the County. Any revenues acquired through fees and charges are returned to the general fund. It should be noted here that this is also the case in the other New Jersey counties surveyed for this report.

2. General Obligation Bonds

The County government has the legal authority to raise the funds for major capital projects and acquisition for a county facility through its own revenue generating routes. This would ordinarily involve the issuance of general obligation bonds backed by the full faith and credit of the county government. Accordingly, Atlantic County issued a general obligation bond for $750,000 for the purchase of the two adjacent parcels of parkland and will service this debt with $150,000 annual appropriation. The debt service on general obligation bonds would affect the debt service capacity of the County.

Consquently, the ability of a county to undertake a project would be influenced by the status of its legal debt reserve and limits(1), and the competition of other projects for long term financing. Moreover, since the retirement of this debt would be a direct function of the local tax effort, the size of the current tax rate would be important in determining how well a specific project can be afforded. Additionally, the County's annual debt service for such capital improvements is outside of the CAP.

The quality of the ratings of these bonds issued by the County would govern the level of interest charged in the financing of the project. A county in relatively good financial condition will have a decided advantage when undertaking building projects on its own than will a government troubled by economic problems.

COUNTY RECREATION AND IMPROVEMENT AUTHORITIES

New Jersey enabling legislation NJSA 40:37B-1 et. seq. empowers local and county governments to create a Recreation Authority as a separate entity to finance, construct and operate a certain public facility, in this case a recreational facility. (An authority is a specific type of public corporation generally created to perform some specific function or public purpose outside the regular structure of government.) The existing Park and Recreation Commission serves only in an advisory capacity and lacks many of the legal powers inherent in an Authority.

(1) The County's debt limitation is determined by the formula of 2% net debt on equalized valution (NJSA 48:2-6).

An Authority operates apart from the County governing body and has, among its powers, the authority to sell bonds for public projects, acquire lands, and receive donations, fees, charges, etc. The legislation creating a Recreation Authority specifies that "the revenues of the authority will at all times be adequate to pay all expenses of the authority, including the expenses of operation and maintenance of any public facility or other property owned or controlled by the authority...and to pay the principal of and interest on any bonds." (NJSA40:37B-14).

In order to raise revenue for its purposes, the Recreation Authority may issue bonds on which the principal and interest are payable:

a. exclusively with revenues from the project financed with the bonds;
b. exclusively from revenues of designated projects, not necessarily financed through the proceeds of the bonds; or
c. from its revenues generally.

Any such bonds may be secured by any grant or contributions from any governmental unit (NJSA 40:37B-16). The advantages of an authority are numerous. The most important of these are:

a. It ordinarily has a single mission. This allows it to focus on a definable range of problems without having its attention intruded upon by other governmentally-related problems.

b. It can accumulate very specialized experience and expertise in specific areas.

c. It is apt to move more quickly than a local or county government.

d. Given a financeable project (that is, one that meets the test of economic feasibility and for which private financing can be arranged in the municipal bond market), it can raise its own capital through the sale of revenue bonds. When revenue bonds are serviced directly from the income produced by the project, as is generally the case, then no local taxes are used.

e. It operates outside of the debt capacity of a local government. However, if there is a shortfall in revenues, the total agency debt could, under certain circumstances, be charged against the county's remaining debt reserve. Nevertheless, the debt incurred by the authority in executing a given project is not directly reflected in the local tax rate.

Some of the disadvantages of a county authority are:

a. It operates outside of the realm of elective politics, bypassing the normal governmental, legislative and executive process. An authority may be less responsive in meeting various public needs than might be desired by the elected leadership. Because of their concern for bond security, authorities are not usually involved in projects involving high risks that may have been designed to serve the greater good of the community (unless the county is willing to pledge its faith and credit behind the agency's bonds or otherwise guarantee their repayment).

b. The ability of an authority to finance and construct a project is completely tied to the authority's ability to market its bonds. Since the saleability of revenue bonds is a key factor, a project will need to demonstrate that it will be fully able to generate adequate income to meet its debt service. Consequently, bonding a project may not always be an easy matter In the financial analysis, therefore, many projects may still necessitate government support (usually by requiring the full faith and credit of the county government behind the bonds of the authority or by securing a commitment to guarantee the payments of any deficits or losses suffered by the authority to the extent that it affects the annual servicing of the authority's bonds). In any event, authority bonds could carry a higher interest rate than those issued by a county directly. This could result in higher annualized debt service costs and, consequently, higher annual operating costs than if the project were financed by the county solely on its own.

Debt services are heavy and park services rarely generate adequate revenues to meet their expenses. Therefore, it would likely be necessary for the County to guarantee the bonds of the Recreation Authority and assist in paying back the loan out of

taxes when the debt service cannot be met through the revenue generated. As guarantor of the bond, the money expended by the County for these capital improvements is outside the CAP. Additionally, forming a Recreation Authority would duplicate financial services available through the County or the Improvement Authority and would entail additional costs for administration, as well. It is interesting to note that according to the State Division of Local Government Services which oversees all Authorities, no Recreation Authority exists or has been created in New Jersey. Apparently, insufficient economic advantages are achieved through such an Authority to merit its creation.

As another option, it would also be feasible for the County Parks and Recreation service to finance general development costs or particular capital improvements such as an ice skating rink or velodrome through an already existing Authority, in this case, the Atlantic County Improvement Authority, since the Improvement Authority can finance any sort of public facilities. (NJSA 40:37A-44 et.seq.) It has already undertaken such related projects as the County Library and renovation of the old Convention Hall. Again, the problem of insufficient revenue to pay off the bond would require the County to make appropriations to the Authority. Moreover, the variable rate loan program that is available through the Improvement Authority can change interest rates rapidly, and is, therefore, preferable for short term equipment purchases rather than long term capital expenditures. In short, Authorities and their powers are most appropriate when sufficient revenue can be generated, as with rents and collateral, to pay off the bond, but the rates of interest available through the Authority and the County should be compared to determine the more favorable source of funding.

3. Assistance from the State and Federal Governments

The broad array of State and Federal Grant and loan programs which once existed has been severely cut back over the last few years, and park services have been particularly hard hit. Nevertheless, a number of programs remain and new legislation appropriating money for specific park and recreation related programs is periodically enacted. It requires considerable time and effort to identify those programs with available funds which are suitable and to follow-up with the necessary applications for funding assistance. However, success can mean a significant financial contribution to the program and can be useful in leveraging additional funds from private sources. The following discussion of several potential funding options is not intended to be comprehensive, but rather to give a sense of the range and scope of government supported funding sources. Further research

would undoubtedly turn up additional opportunities.

a. Green Acres Program

The most significant State program remaining for park acquisition and development is Green Acres, which has provided the resources for the acquisition of Riverbend Park. The Green Acres program also offers low-interest loans for park development, although development is currently of a lower State priority than acquisition.

b. Coastal Resources

The Division of Coastal Resources, in addition to providing the funds for this Recreation Master Plan, may assist in financing a variety of water-related programs and projects with grants and loans.

c. Army Corps of Engineers

The Corps is authorized to plan and design flood control, erosion control, and wetlands mitigation measures.

d. Legislative Initiatives

Portions of special taxes have also been earmarked for purposes that might be compatible with those of the County, and these too will require more thorough and detailed investigation. For example, recently enacted federal legislation (known as the Dingal-Johnson Bill) has appropriated over $1 million from an outboard motor fuel tax to municipalities for projects to increase water access, which would include boat ramps and marinas. As a condition, however, the project must accommodate motor boats. The State money is appropriated through the Division of Fish, Game and Wildlife, which will review applications. State Senator Gormley of the 2nd District and Assemblyman Anthony Villane of the 11th District have recently introduced legislation (#S1897 and #A2195) which proposes to increase the real estate transfer tax and, if passed, would provide $50 million annually to programs which protect and maintain New Jersey's natural resources. Green Acres funds would be replenished as would those of other Department of Environmental Protection programs, and new opportunities would undoubtedly be created for park development.

e. Demonstration Project Grants

Demonstration programs seeks to support unique and innovative projects which develop, test and report methods and

techniques to meet a particular challenge, resolve a problem, etc. It must offer methods that will be useful elsewhere under comparable circumstances. For instance, a potential demonstration program might evolve from the county's efforts to provide active recreation facilities while preserving and protecting wetlands.

4. Fees and Charges

While it is a fact that park services do not pay for themselves and must be underwritten by county and local governments through taxation, the services they provide are considered both beneficial and desired by the public, and their provision is commonly viewed as a function of government. However, the judicious use of fees can significantly reduce the costs to the County for operation, maintenance and personnel of a park's services. Pricing decisions can be both technically difficult and politically sensitive. As the demand for more recreational and leisure activities has increased, the trend toward greater use of fees and charges to help to meet expenses has grown nationwide. The Atlantic County Park Commission has decisions to make as to the level of service it wishes to provide and how restrictive the charges may be to potential users.

User fees can be charged for services used by a limited group of people and can be structured to cover all or part of the costs incurred. The higher the cost, the more it may restrict users. However, there is a growing acceptance of a "pay-as-you-go" fee structure whereby clientele who actually use the services pay for them. Growing, more affluent suburban areas can more easily charge directly for the services they provide because they are not tied to the tradition of free recreation and generally have a population able to pay.

Policy varies among New Jersey County Park Services as to the degree charges should be passed on to users who are county residents. Union and Mercer Counties, for example, feel that, as a public entity, they should charge less than private enterprise for an activity or facility. Monmouth County, on the other hand, avidly supports user fees which cover the cost of a program or are equal to the going market rate as fair and equitable. Those who oppose user fees argue that a public service should be equally available to all citizens, that all citizens need recreation while user prices impose a hardship on

the poor. Others object to the technical difficulty of controlling use in order to charge and to the costs incurred in collecting revenues. Nevertheless, the direct payment by users for recreation services is gaining wide acceptance today by both agencies and the public. Citizens are becoming less willing to provide support out of local taxes and more people are insisting that the clientele who actually use the services offered by a recreation and park agency should pay for them. This attitude was confirmed by the findings of a nationwide study conducted for the Heritage Conservation and Recreation Service (1976). Advocates argue that services supported by taxes are a subsidy of non-users to users, that the poor should be given the option of not participating in the services and avoid payment rather than be forced to pay taxes for them. Consequently, the elderly are often among the greatest supporters of user fees.

Each County must determine this policy for itself. One thing is clear, however; if user fees and charges are going to be used at levels that are not nominal, then they must be introduced as early on in the program as possible to avoid controversy. Experience has shown that efforts to raise fees at some later time creates controversy and opposition, whereas if they are set at that level at the beginning, there is very little dissatisfaction. Very little information exists as to what proportion of operating costs are being met our of the revenues of user pricing. In the informal survey of New Jersey Counties, the range was found to be between 20-40%.

As an example:

Union 20%
Mercer 37%
Monmouth 40%

The study for the US Heritage Conservation and Recreation Service found the average level of funding from user prices attained by counties was 28% of operations and maintenance costs (Figure 1). From this study it appears that attaining a high level of self-sufficiency through fees and charges may be unrealistic. Nevertheless, establishing realistic fees that are consistent with the going rate in the area for comparable services can cover all or part of the costs of providing that service.

Only a few recreation programs are likely to be self-sustaining or profitable. Golf courses are known to be most profitable, as are marinas, and developing these within a park system can be economically desirable. On the other hand, it may not be feasible or desirable to set a price on such amenities as trails and open spaces. Fees can reasonably be charged for those services that offer benefits to particular users, such as the reservation of ballfield for league play, or picnic groves for exclusive use, or for the use of the skating rink. (Note: Conversion of an ice skating rink to a roller rink in the summer was not found to be profitable because the demand for the indoor facility in the summer was significantly less than in the winter, and the cost of laying the floor was costly.)

The cost of lighting fields or courts could also be passed on. While nighttime lighting is expensive, it has been found that there is a willingness to pay for high quality, special facilities. Many programs can be required to pay their own way, and user fees can be structured accordingly.

Several methods exist for determining the user charges for an activity . One method is to calculate the cost of offering a service and set a price which covers (fully or partially) the cost. A second method is to determine the market rate for that particular activity in the area. This will ensure that the public service that is offered is not detrimental to the success of similar private services available. For example, rents at a public marina would be comparable to those at private marinas in the county. A third method for establishing a price is to determine what prices potential clients of the program can reasonably be expected to pay and then to gear the program to that.

Several examples of user fees established in other counties that might be appropriate to Atlantic County follow. Additional examples of programs and fee structures are available at the end of this report in sample county catalogues.

Reservation of Picnic Groves: Mercer County $100 weekends, $50 weekdays

Reservation of ball fields: Monmouth $13/game soccer

Outdoor tennis facility: Mercer $30 season pass
Atlantic City $8/night tennis

Indoor tennis facility: Mercer $600 season pass prime time

Ice Skating: Union County $3 adults, $2.50 youths, weekends
$1.50 skate rentals

Roller Skating: Union $1 admission, $1 rental

Golf Course: Mercer $6.00 weekends

Setting up a fee structure is not an exact science, and it may be necessary to experiment, keeping in mind clear cut objects and the client group you intend to reach.

In addition to user fees, revenue can be generated through charges for special events and promotional activities. Popular competitions, such as tennis or baseball tournaments, attract business and, more importantly, bring media attention to a recreation project. Since these can be quite profitable, they can help to defray the cost of programs which are considered desirable to have but which may generate little or no revenue. Innovative and widely publicized events attract new visitors to the park and help to establish a park identify. Examples of such programs include folk festivals, crafts and antique shows, concerts-in-the-park, and league playoffs. Facilities such as a Velodrome in the park could generate large revenues through competitive events which attract visitors and participants from New Jersey and surrounding states.

Revenues generated through programs and activities are presently returned to the Atlantic County general fund. In turn, the County appropriates money for operations,maintenance and personnel out of the budget. An alternative would be to earmark those revenues generated in recreational activities in a dedicated fund.

5. Special Assessments

Given the extent of growth and development in the region, developers might reasonably be expected to share responsibility for the area's growing need to preserve open space. Accordingly, subdivision regulations can recommend that developers contribute toward these open space needs by dedicating or reserving land as public open spaces, or through payment of a fee earmarked for acquisition and recreation development. Their contribution could be commensurated with the amount of lands that they develop and the numbers of people whom they attract to the area.

Local governments may feel this to be infringement of their own perogatives to assess their developers for open space contributions. However, local growth taxes county services, as well, and adequately developed county park stands to benefit everyone. Broader support will enable the county to provide facilities and attractions that governments smaller in scope will be unable to provide. It is, therefore, not unreasonable to request that some share of a developer's contribution be earmarked for regional park development. The issue of developer contributions requires additional legal research. In related situations there is currently ongoing litigation brought on by certain developers challenging the right of municipalities to assess charges on new residential, industrial and commercial construction in order to assist local governments to meet their fair share housing responsibilities. All these factors should be considered when a government intends to pay for programs through indirect assessments.

6. Donations

Donations and contributions from the private sector, including businesses, civic organization and foundations, are an inadequately tapped resource for writing down the costs of capital improvements and operating costs for Atlantic County parks. Corporate gift programs involve the solicitation of corporate contributions for donations of land, facilities development, and facilities maintenance. Normally contributors

inadequately tapped resource for writing down the costs of capital improvements and operating costs for Atlantic County parks. Corporate gift programs involve the solicitation of corporate contributions for donations of land, facilities development, and facilities maintenance. Normally contributors give most readily to projects in which they are personally interested, that are unique in concept, original in design and which have the quality of excellence that makes them stand above normal development Businesses will give for a variety of reasons. One important motive is to attract and retain personnel through corporate support community amenities which improve the quality of life. Another is that visible contributions are good public relations. With nearly 50,000 predominantly young employees who stand to benefit from improved park facilities, the Casino industry is likely to be a prime contributor. In addition, there are certain tax advantages. However, recent changes in the tax laws may dramatically affect this.

Soliciting major donations from businesses and foundations is time consuming, specialized and competitive. Development of a comprehensive gift giving program should be approach in a thorough and systematic fashion. To be most effective, it is advisable to consider hiring a specialist in corporate giving. It is occasionally possible to underwrite this cost.

Corporate gift programs involve the solicitation of corporate contributions for donations of land, facilities development, and facilities maintenance. Foundations, too, can complement governmental efforts to deliver services or improve the quality of life. It is difficult to attract funds for acquisition and development of recreation and park facilities. However, agencies with innovative programs which explore different directions or aiming to meet the needs of a new type of clientele may be successful in securing foundation support for these. Foundations like to provide "seed" money which serves to stimulate action and initiate projects and are less likely to fund the major cost of a project. Two points to remember when selecting foundations to approach: most foundations confine their giving to specific geographic areas and to clearly defined fields of interest.

Direct monetary contributions are only one way in which companies can give. They can also assist in construction of facilities, such as bike trails or a soccer field. The range of innovative possibilities is limitless, and it is beyond the scope of this report to survey them in detail.

Several methods are suggested for attracting contributions to implement the Atlantic County park project.

a. Friends of the Park Foundation, a non-profit corporation has been established to solicit and accept donations of money and land from local corporations and individuals for the Atlantic County Park system. Donations are generally made to trusts and foundations associated with recreation and parks rather than directly to a public agency, and this newly established group will service this function. This group will also be the chief fund raising arm of the Park System and have the capacity to sponsor special events to bring revenues into the park system.

b. Corporate "adopt-a-park" projects would be developed under the auspices of Friends of the Park for specific donations to the park system by individuals and corporations. Corporations would be encouraged to adopt a park for 3 years or longer by underwriting some of the costs of maintaining, operating or improving that facility.

c. Gift catalogues, also part of the Friends Foundation, would facilitate gift-giving by private individuals and civic groups as well as corporations. Gifts can range in scope from the sponsorship of a lighted ballfield to a park bench, and donation plaques can be used to give recognition to donors.

d. Public-private ventures and cooperation help to make better use of limited resources. This will be discussed in detail in the next section of this paper.

7. Public-Commercial Cooperation

Cooperative arrangements between public parks and recreation departments and the private sector offer promising alternative strategies for revenue and resources management. Among the options for private sector involvement are contracting out promotional events, public-private partnerships, and volunteerism. Again, the range of possibilities is extensive. A key point is that all sound and innovative ideas can be successful if they are promoted well.

a. Cooperative Programs can include nationally or locally sponsored promotional programs at public facilities. Some examples include the Ken'L Ration dog shows, a distance fun run sponsored by perhaps the local sporting goods store and the recreation department, demonstrations sponsored by a local gymnastic team.

b. Joint capital development involves the combined public and private development of a recreational area or facility. An appropriate example for Atlantic County is the private development and operation of a marina at a county park. Development of a velodrome that can accommodate national competition would undoubtedly require private capital to supplement public investment. A build and lease strategy might be feasible, whereby a public agency builds the shell, and leases it to an entrepreneur who complete the development and operates the attraction. The County would receive rent and/or a percent of the gross sales.

c. Contracted facilities and concessions which enable private enterprise to operate a publicly developed facility or to provide a supplementary service offer opportunities for revenue generation through the leasing of these contracts. If the County does not wish to have staff responsibility, concessions allow the County to avoid the administrative costs of developing and operating these facilities and services. Several obvious opportunities for concessions exist at Riverbend Park. Other ideas can be successfully developed as the park's facilities expand.

   - Marina and boat rental facility.
   - Pro shop which offer a wide variety of sporting equipment and related supplies.
   - Ice skating rink.
   - Food services, ranging from mobile snack bars to an attractive restaurant.

Revenues from cooperative ventures can come from direct operating revenue, such as activity fees, user fees, equipment rental fees, retail sales, etc., and from lease revenues in the form of rent or a percent of sales.

Concessions must be able to turn a reasonable profit, or few private enterprises would be attracted to them. The County, in turn, gains by avoiding the additional administrative and operational costs while still providing a desired service to the public. As an alternative, choosing to expand County personnel and to operate concessions oneself may prove to be more profitable in the long run, as was found to be the case in Monmouth County. However, this is a policy decision which can be reevaluated as the program and facilities expand.

D. RECOMMENDATIONS AND CONCLUSIONS

The successful development and implementation of a park facilities plan requires the skillful meshing of park management expertise and broad financial resources. The following recommendations and conclusions are intended to summarize the information presented in this report as well as offer specific steps directed toward the implementation of a workable development program. They do not attempt to offer a comprehensive list of programs for revenue generation. The possibilities are unlimited and development of innovative ideas is best left to the specialists in park management who will manage the program and its promotion.

1. Public recreation programs cannot be totally financially self-sufficient. They are offered by the government as a service desired by the public and intended to benefit the general welfare. Accordingly, park programs rely heavily on government appropriations for development and operation costs.

2. The objectives for Riverbend Park need to be carefully atriculated and politically supported; that is, they should be understood and agreed to by the County and supported by the public. Judgements needs to be made regarding development costs and operating costs not covered by revenues.

3. Development and operation of park facilities are costly. Accordingly, implementation should occur in increments consistent with the long-range plan and as money and resources become available and needs demand.

4. A development entity will need to be selected. A Recreation Authorty is permitted by law with specific powers, but use of a Recreation Authorty may duplicate services and resources already available through the County itself or the Improvemnt Authority. Moreover, because of the inability of the recreation program to generate adequate resources to meet its debt service, the interest rate on revenue bonds is likely to be lower when issued by the County or Improvement Authorty. Further legal research is required into the role of the Improvement Authorty as a vehicle to finance certain improvements.

5. Efforts to obtain revenue for park development should focus on the Green Acres program, the primary governmental program available for this purpose. The requisite application can be skillfully completed using the site plans and maps prepared for this Master Plan. Additional government grant programs and legislative initiatives should be fully explored, as well, and applications made to those which are appropriate. Senator Gormley's recent bill, for example, merits careful watching.

6. The key to a positive cash flow and potential profits depend on the successful promotion of the park and the competence of its management. Riverbend Park should be the centerpiece of the Atlantic County Park System with exciting programs and year-round activities to attract County residents and visitors every season. A successful marketing strategy requires the expertise of a professional who specializes in this area and strong and energetic promotion of programs by the County.

7. User fees and concessions should be considered to help offset the overall costs of operating programs. The judicious application of user charges generally is supported by the public if they are introduced at the beginning of the program and are for the use of well-maintained facilities. Establishing the pricing is, first, a policy decision and second, requires some market research coupled with flexibility. The design of the park should lend itself to the maximum use of concessions and revenue generating facilities. The option of dedicating the revenues generated in a fund earmarked for recreational purposes should also be considered and the legal ramifications explored by the County's legal staff.

8. Soliciting donations from businesses and foundations for facilities development is a very competitive business and should be approached in an organized and professional manner. The Friends of the Park Foundation is a useful mechanism for attracting contributions and support, and their work should be supported by the professional assistance of a corporate fund raiser who specializes in this area and who will bring his expertise and experience to this effort.

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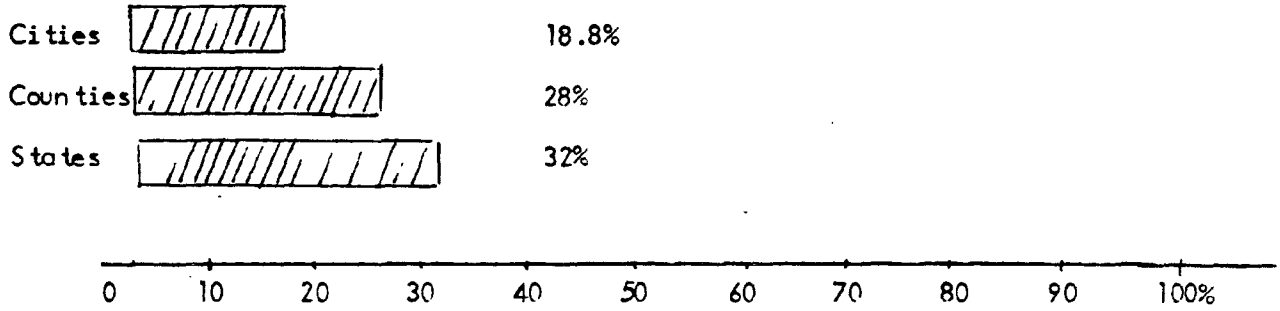
The Riverbend Park Development project represents an exciting opportunity to introduce much needed active recreation opportunities to Atlantic County while preserving sensitive open space in an area that is growing rapidly. The accompanying site plan for the park offers exciting possibilities for physical amenities and facilities. However, the final success of the park revolves around the energetic promotion of the recommended implementation strategies, which are a vital component to the overall workability of the project. We are confident that as the project advances from the planning to development stage, these strategies will provide functional mechanisms for achieving successful results.

Figure 15



Average percent of operation and maintenance costs recovered by user charges.

Source: U.S. Heritage Conservation and Recreation Service, Evaluation of Public Willingness to Pay User Charges for Use of Outdoor Recreation Areas and Facilities, Washington, DC, Superintendent of Documents, 1976, p.41)

Figure 16

Primary methods used by park and recreation agencies to establish a price.

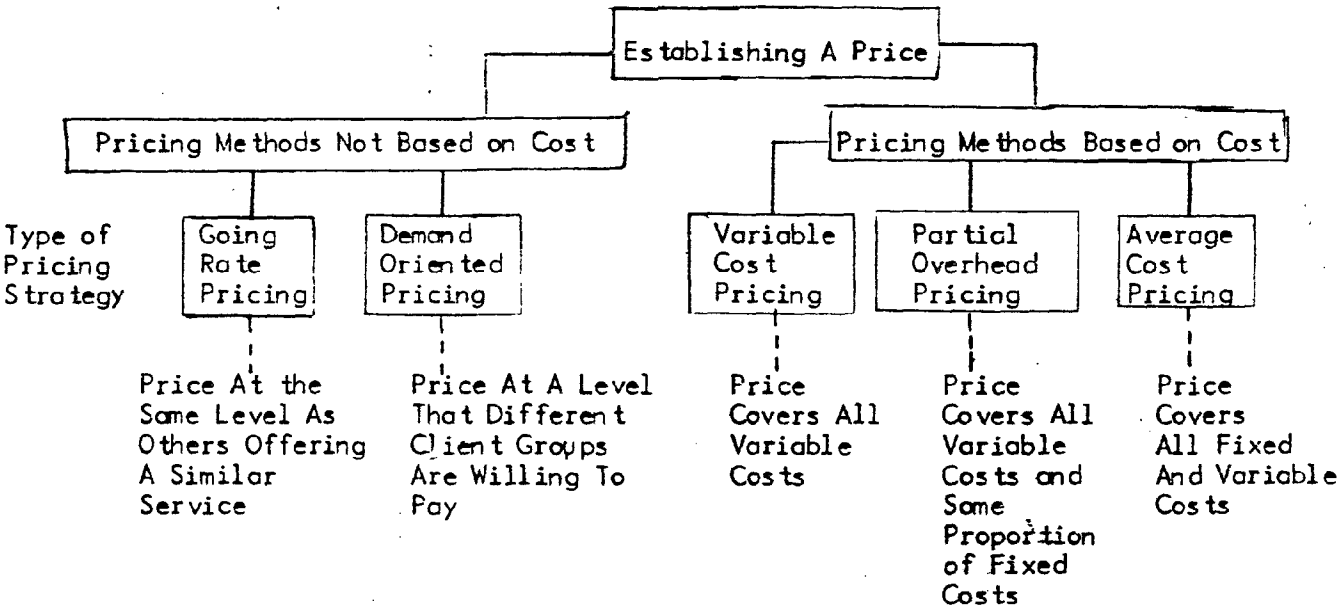


TABLE 3

ORDER OF MAGNITUDE
CONSTRUCTION COST ESTIMATE

Area	Item	Quantity	Unit	Unit Cost	Item Cost	Subtotal	Remarks
A. (Phase I)						1,268,700	
	Clearing and Earthwork		LS		40,000		
	Utilities						
	Water		LS		8,000		
	Electrical		LS		150,000		
	Storm Sewer		LS		50,000		
	Sanitary		LS		30,000		
	Roads	650	LF	50	32,500		22 feet + (2)3' bikeways
	Parking	70	Cars	60	4,200		gravel
	Trails		LS		5,000		
	Staff/Visitor Center	6,000	SF	75	450,000		
	Basketball Courts (Lighted)	4	EA	40,000	160,000		
	Shuffleboard/Boccie Courts	6	EA	15,000	90,000		
	Volleyball/Croquet Field	1	EA	4,000	4,000		
	Handball Courts (Lighted)	4	EA	25,000	100,000		
	Tennis Courts (Lighted)	2	EA	45,000	90,000		
	Tot lot	1	EA	25,000	25,000		
	Signage/Landscaping/ Site Furnishings		LS		30,000		

Area	Item	Quantity	Unit	Unit Cost	Item Cost	Subtotal	Remarks
B. (Phase 1)						513,000	
	Clearing & Earthwork		LS		60,000		
	Fill		LS		45,000		2' depth over 1/2 acre
	Roads	1,350	LF	50	67,500		
	Parking	90	cars	60	5,400		
	Trails		LS		5,000		
	Comfort station	400	SF	75	30,000		
	Clivus Multrum		LS		30,000		
	Utilities:						
	Water		LS		25,000		
	Electric		LS		80,000		
	Softball Fields (Lighted)	2	EA	60,000	120,000		
	Signage/Landscaping/ Site Furnishings		LS		20,000		
	Tot lot	1	EA	25,000	25,000		
C. (Phase 1)						635,575	
	Clearing/Earthwork & Fill		LS		50,000		
	*Dredging	8,000	CY	15	120,000		
	*Bulkheading	150	LF	425	63,750		
	*Stone rip-rap	500	tons	35	17,500		
	*Borrow excavation	200	CY	10	2,000		
	*Concrete ramp	165	SY	75	12,375		
	*Concrete apron	35	SY	50	1,750		
	Electric		LS		30,000		
	Roads - gravel	2,900	LF	15	43,500		
	Parking	120	cars	60	7,200		
	Docks		LS		80,000		
	Observation tower		LS		50,000		
	Boardwalk	4,500	LF	5	22,500		4' wide
	Tennis Courts (Lighted)	3	EA	45,000	135,000		

*From a recent report by Walker, Previti, Holmes & Associates, Engineers, Ocean City, NJ

Area	Item	Quantity	Unit	Unit Cost	Item Cost	Subtotal	Remarks
D. (Phase 1)						43,000	
	Clearing		LS		10,000		
	Gravel Road & Parking		LS		20,000		
	Trails		LS		5,000		
	Signage/Misc.		LS		8,000		
						Subtotal Phase 1 2,460,275	
E. (Phase 2)						810,800	
	Clearing		LS		50,000		
	Earthwork	20,000	CY	5	100,000		
	Utilities						
	Water		LS		30,000		
	Electric		LS		80,000		
	Roads	700	LF	50	35,000		
	Parking	80	cars	60	4,800		
	Trails		LS		8,000		
	Multi-use building	3,000	SF	75	225,000		
	Clivus Multrum		LS		30,000		
	Pedestrian Bridges	4	EA	10,000	40,000		12' X 20'
	Softball Fields (Lighted)	1	EA	60,000	60,000		
	Street Hockey Rink (Lighted)	1	EA	100,000	100,000		
	18 Hole Disc Golf Course		LS		15,000		
	Archery Range		LS		8,000		
	Tot lot	1	EA	25,000	25,000		
F. (Phase 2)						88,000	
	Clearing		LS		10,000		
	Gravel Roads & Parking		LS		20,000		
	Picnic Pavilions	2	EA	20,000	40,000		
	Trails		LS		5,000		
	Volleyball Courts	2	EA	4,000	8,000		
	Signage/Site Furnshings		LS		5,000		

Area	Item	Quantity	Unit	Unit Cost	Item Cost	Subtotal	Remarks
						Subtotal Phase 2 898,800	
						Subtotal Phases 1 & 2 3,359,075	
G.						531,800	
	Clearing & Earthwork		LS		120,000		
	Utilities:						
	Water		LS		35,000		
	Electric		LS		15,000		
	Roads	1,800	LF	50	90,000		
	Parking	80	Cars	60	4,800		
	Trails		LS		7,000		
	Softball Fields	2	EA	30,000	60,000		
	Softball/Football/ Soccer Fields	2	EA	35,000	70,000		
	Comfort Station	1	EA	60,000	60,000		
	Picnic Pavilions	2	EA	20,000	40,000		
	Signage/Site Furnishings		LS		5,000		
	Tot lot	1	EA	25,000	25,000		
H.						1,356,000	
	Clearing & Earthwork		LS		150,000		
	Utilities						
	Water		LS		120,000		
	Electric		LS		80,000		
	Roads	3,400	LF	80	272,000		
	Parking	180	Cars	200	36,000		
	Trails		LS		25,000		
	Comfort Station	1	EA	60,000	60,000		

Area	Item	Quantity	Unit	Unit Cost	Item Cost	Subtotal	Remarks
	Picnic Pavilions	4	EA	20,000	80,000		
	Football/Soccer Fields	3	EA	30,000	90,000		
	Softball Fields	4	EA	30,000	120,000		
	Tennis Courts	4	EA	25,000	100,000		
	Basketball Courts	8	EA	20,000	160,000		
	Tot lot	1	EA	25,000	25,000		
	Volleyball Fields	1	EA	4,000	4,000		
	Signage/Site Furnishings		LS		15,000		
I.						2,906,000	
	Clearing & Earthwork		LS		150,000		high
	Utilities						
	Water		LS		150,000		
	Electric & Lighting		LS		250,000		
	Sanitary		LS		300,000		
	Roads	4,100	LF	50	205,000		
	Parking	350	Cars	60	21,000		
	Velodrome		LS		1,800,000		
	Signage/Furnishings/Misc.		LS		30,000		

Grand Total without fees and contingencies $8,152,875

ACKNOWLEDGEMENTS

The Master Plan was prepared by Wallace Roberts & Todd, landscape architects, and architects, Philadelphia, Pennsylvania with consulting services by Charles C. Nathanson and Associates, P.A. Trenton, New Jersey for and with the assistance of the Atlantic County Department of Regional Planning and Development, Atlantic City, New Jersey.

Atlantic County Department of Regional Planning and Development

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Jeffrey J. Curtin, Director, Parks and Recreation
John F. Brennan, Supervising Principal Planner
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Wallace Roberts & Todd

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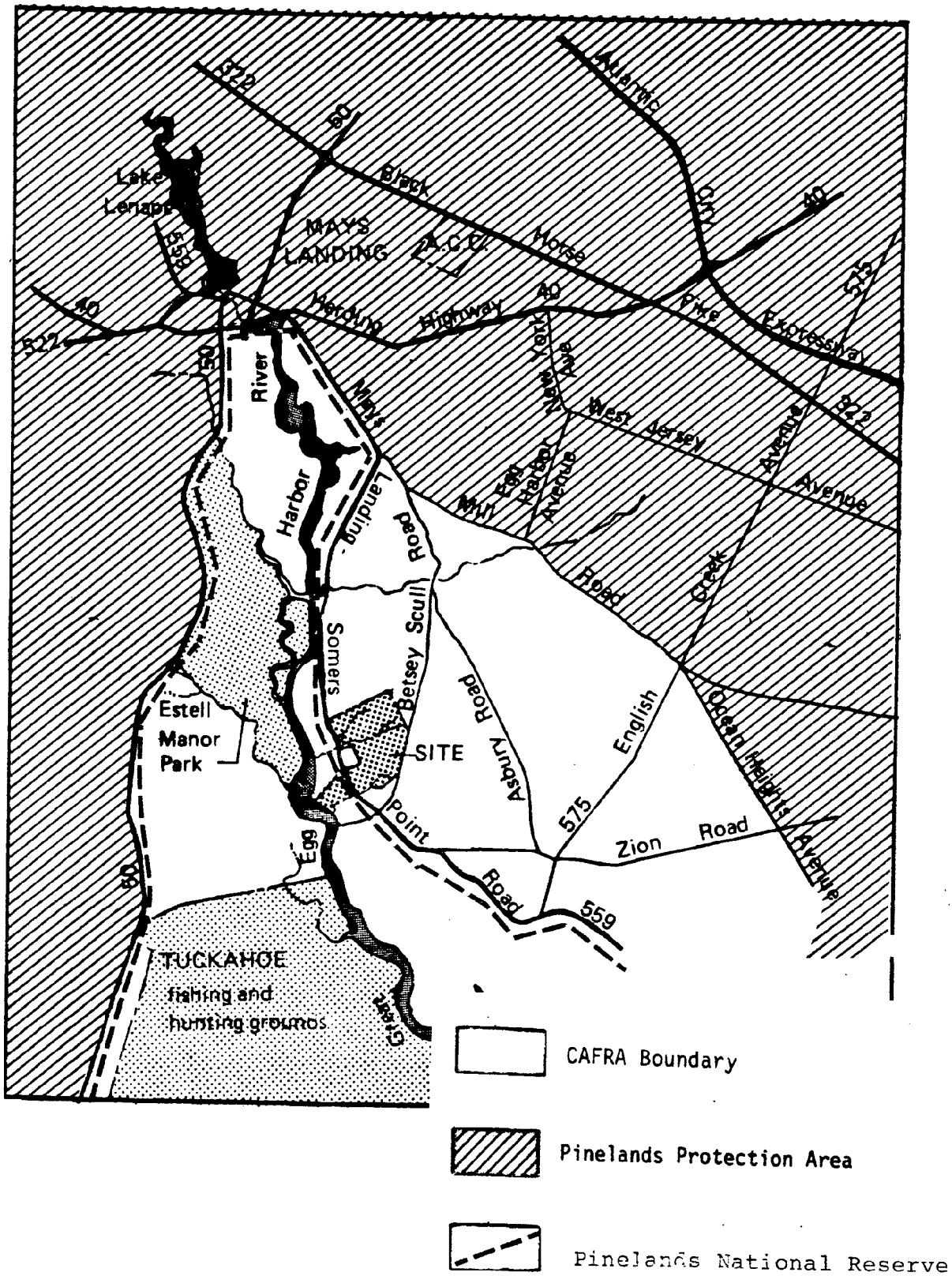
Charles C. Nathanson and Associates, P.A.

Charles C. Nathanson, President
Maxine Scribner, Senior Associate

In addition to the above participants, the following individuals provided valuable information, review and comment in preparation of the Master Plan.

Maria T. Bohle	Egg Harbor Township Municipal Government
Robert Albertson	Egg Harbor Township Municipal Government
Robert Lincoln	Egg Harbor Township Recreation Department
Nicholas Regina	Somers Point Recreation Department
Warren E. Fox	Chairman, Parks and Recreation Advisory Commission
Edward M. Launay	Environmental Concern
Sandy Bierbrauer	Stockton State College
Catherine Cahill	Manalapan Township Parks and Recreation
Patrick Killian	Atlantic City Casino Association
Robert Beck	Green Acres Program
Bruce Bechtloff	Green Acres Program
Robert Piel	Coastal Resources

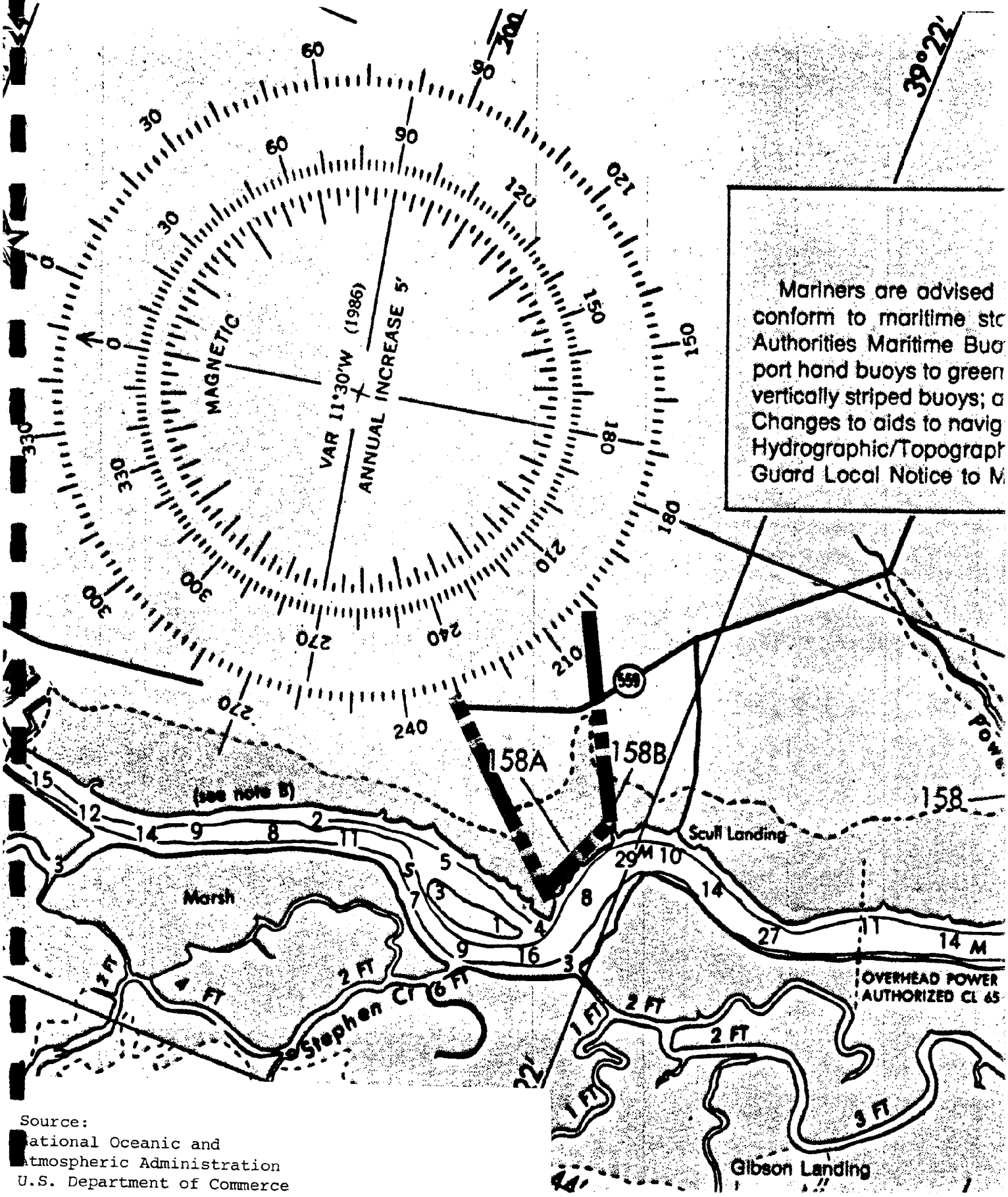
APPENDIX A



Lake Lenape
MAYS LANDING
A.C.C.
Black Horse Pike
Atlantic City Expressway
Herding Highway
New York Ave
West Jersey Avenue
Egg Harbor Avenue
Mill Road
Creek
Mays Landing Road
Harbor River
Somers Point Road
Betsey Scull Road
Asbury Road
English Road
Ocean Heights Avenue
Zion Road
Estell Manor Park
SITE
TUCKAHOE fishing and hunting grounds
Egg Harbor
Great
322
40
50
559
575
CAFRA Boundary
Pinelands Protection Area
Pinelands National Reserve

APPENDIX B

Nautical Chart #12316



Source:
National Oceanic and
Atmospheric Administration
U.S. Department of Commerce

APPENDIX C

SALTWATER-MARSH SPECIES

COMMON NAME	SCIENTIFIC NAME
Zone Nearest Water:	
Salt-marsh cordgrass	Spartina alterniflora
Inner Zones:	
Salt-meadow grass	Spartina patens
Black marsh grass	Juncus gerardi
Spike grass	Distichlis spp.
In Saline Depressions:	
Glasswort	Salicornea spp.
Sea Blite	Suaeda spp.
Marsh fleabane	Pluchea spp.
Orache	Atriplex patula
Saltwort	Salsola kali
On Higher Ground:	
Sea lavender	Limonium spp.
Salt-marsh aster	Aster tenuifolius
Marsh mallow	Hibiscus palustris
Seaside goldenrod	Solidago sempervirens
Sea myrtle (shrub)	Baccharis halimifolia
Marsh elder (shrub)	Iva frutescens

Source: Vegetation of New Jersey
Robichaud, B., Buell, M., 1973.

LOWLAND FOREST SPECIES
CEDAR SWAMP FOREST

Common Name	Scientific Name
Trees	
southern white cedar	Chamaecyparis thyoides
trident read maple*	Acer rubrum
blackgum* (sour gum)	Nyssa sylvatica
sweetbay magnolia*	Magnolia virginiana
pitch pine*	Pinus rigida

*Generally sparse or understory species

Shrubs	
highbush blueberry	Vaccinium corymbosum
dangleberry	Gaylussacia frondosa
swamp azalea	Rhododendron viscosum
sweet pepperbush	Clethra alnifolia
fetterbush	Leucothoe racemosa
Herbs	
chain fern	Woodwardia spp.
bladderwort	Utricularia spp.
sundew	Drosera spp.
pitcherplant	Sarracenia purpurea
swamp pink	Helonias bullata
partridgeberry	Mitchella repens
curly grass fern	Schizaea pusilla
sphagnum moss	Sphagnum spp.

Source: McCormick, Jack, Pine Barrens: Ecosystem and Landscape
Forman, R.T., ed., 1979

LOWLAND FOREST SPECIES
HARDWOOD SWAMP FOREST

Common Name	Scientific Name
Trees	
trident red maple	Acer rubrum
blackgum (sour gum)	Nyssa sylvatica
sweetbay magnolia	Magnolia virginiana
gray birch	Betula populifolia
sassafras	Sassafras albidum
Shrubs	
highbush blueberry	Vaccinium corymbosum
sweet pepperbush	Clethra alnifolia
swamp azalea	Rhododendron viscosum
leatherleaf	Chamaedaphne calyculata
fetterbush	Leucothoe racemosa
black huckleberry	Gaylussacia baccata
dangleberry	Gaylussacia frondosa
Herbs	
chain fern	Woodwardia spp.
bladderwort	Utricularia spp.
sundew	Drosera spp.
sphagnum moss	Sphagnum spp.

Source: Vegetation of New Jersey
Robichard, B., Buell, M., 1973

McCormick, Jack, Pine Barrens: Ecosystem and Landscape
Forman, R.T., ed., 1979

LOWLAND FOREST SPECIES
PITCH PINE LOWLAND FOREST

Common Name	Scientific Name
Trees	
pitch pine	Pinus rigida
red maple	Acer rubrum
blackgum (sour gum)	Nyssa sylvatica
gray birch	Betula populifolia
sassafras	Sassafras albidum
sweet gum	Liquidambar styraciflua
Shrubs	
sheep laurel	Kalmia angustifolia
dangleberry	Gaylussacia frondosa
black huckleberry	Gaylussacia baccata
grouseberry	Gaylussacia dumosa
winterberry	Ilex verticillata
staggerbush	Lyonia mariana
highbush blueberry	Vaccinium corymbosum
sweet pepperbush	Clethra alnifolia
swamp azalea	Rhododendron viscosum
maleberry	Lyonia ligustrina
fetterbush	Leucothoe racemosa
catbrier	Smilax glauca
bullbrier	S. rotundifolia
scrub oak	Quercus ilicifolia
Herbs	
wintergreen	Chimaphilia maculata
bracken fern	Pteridium aquilinum
cinnamon fern	Osmundia cinamomea
turkeybeard	Xerophyllum asphodeloides
sphagnum moss	Sphagnum spp.
haircap moss	Polytrichum juniperinum
other bryophytes	

Source: McCormick, Jack, Pine Barrens: Ecosystem and Landscape
Forman, R.T. ed. 1979

UPLAND FOREST SPECIES

Common Name	Scientific Name
Trees	
pitch pine	Pinus rigida
shortleaf pine	Pinus echinata
virginia pine	Pinus virginiana
red cedar	Juniperus virginiana
black oak	Quercus velutina
white oak	Quercus alba
chestnut oak	Quercus prinus
blackjack oak	Quercus marilandica
post oak	Quercus stellata
scarlet oak	Quercus coccinea
southern red oak	Quercus falcata
Shrubs	
lowbush blueberry	Vaccinium vacillans
black huckleberry	Gaylussacia bacata
scrub oak (bear oak)	Quercus ilicifolia
mountain laurel	Kalmia latifolia
Grasses and Herbs	
firesedge	Cyperaceae fam.
orange broomsedge	Andropogon virginicus
switchgrass	Panicum virgatum
bracken fern	Pteridium aquilinum
wintergreen	Chimaphilia maculata

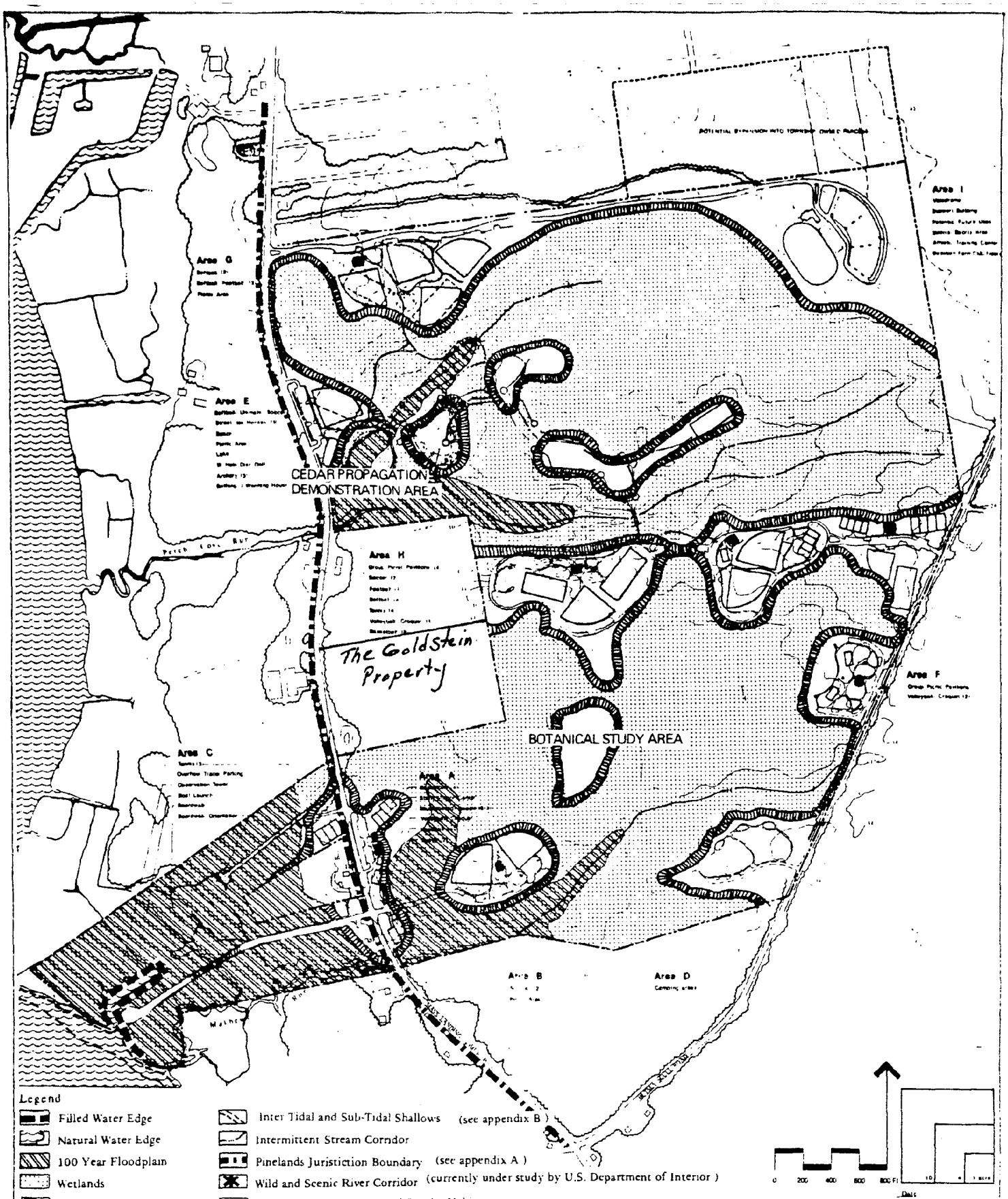
Source: McCormick, Jack, Pine Barrens: Ecosystem and Landscape
Forman, R.T., ed., 1979

Appendix D

Wetlands Inventory, Goldstein Property, River Bend Park

The consulting firm of Environmental Concern Inc. was retained by the County to perform wetlands inventory for the 24 acre land parcel west of the Haines property, along Somers Point Road. (see attached map) This wetland inventory was requested to determine if an upland link could be formed from the central upland core of the Haines property to the roadway.

Mr. Launay, of Environmental Concern had made a number of site inspections and determined that between 18.5 to 21 acres of the 24 acre site contains forested wetlands. This factor plus an evaluation of draft wetland maps indicated that no upland connection could be made using this property. Other alternatives will have to be evaluated, including acquiring additional land west of the Goldstein property and possibly west of the Bain's/White property.



River Bend Park

the master plan

Map 6

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