Pocomoke River State Park
Land Unit Plan

November 2008

Maryland Department of Natural Resources
Resource Planning

State of Maryland

Maryland Department of Natural Resources
Public Lands Policy & Planning
580 Taylor Avenue E-4
Annapolis, Maryland 21401

Approval of the **Land Unit Plan** for **Pocomoke River State Park,** has been granted on the this 7th day of November 2008.

John R. Griffin, Secretary
Maryland Department of Natural Resources

Acknowledgements

A number of agencies and individuals made significant contributions towards the development of the Land Unit Plan for Pocomoke River State Park. Staff from various agencies at DNR made significant contributions towards the development of the Plan. Special thanks goes to these members for their time and effort in reviewing the Plan and providing comments.

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Pocomoke River State Park
Draft Land Unit Plan

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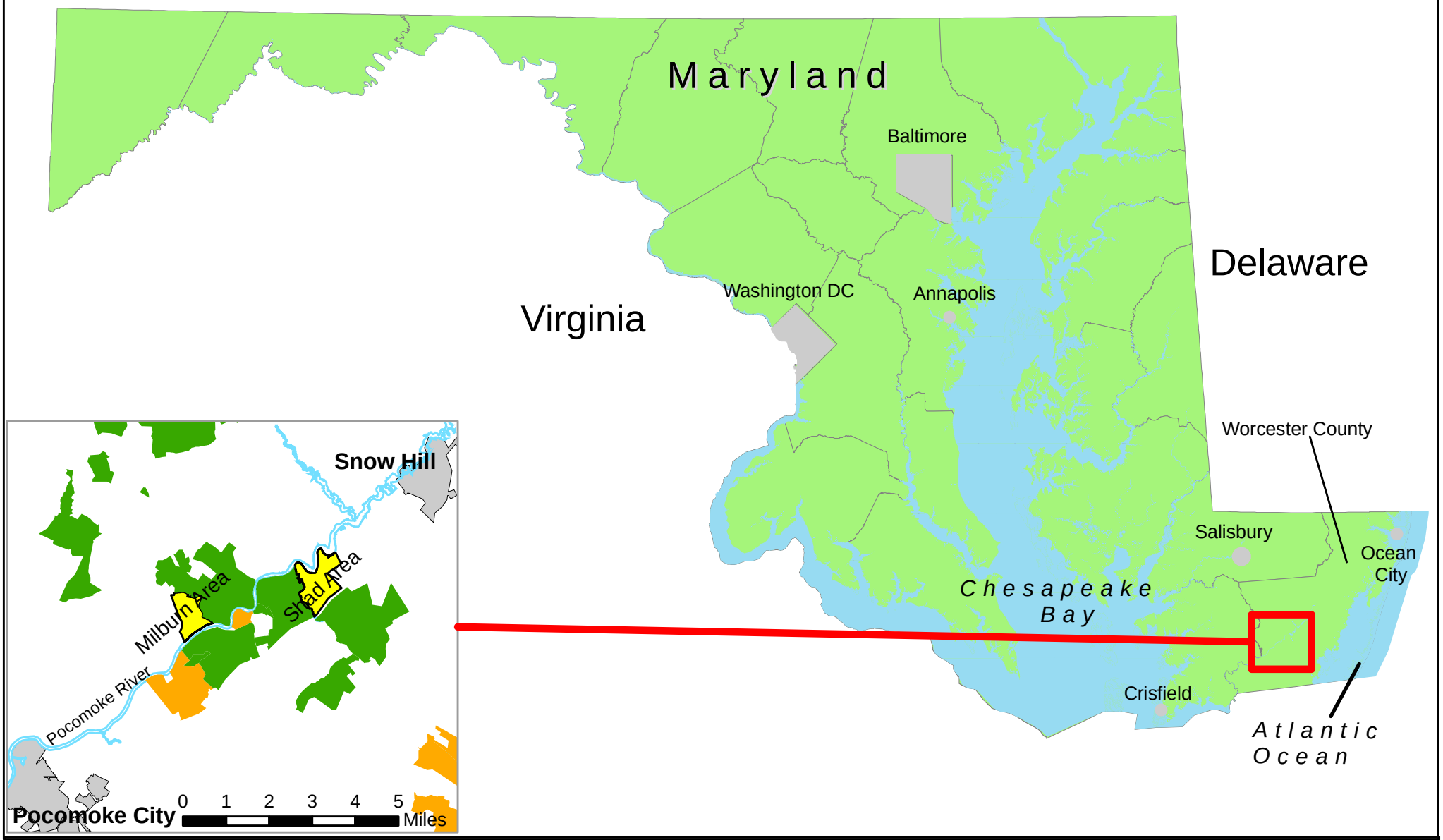
Pocomoke River

Pocomoke River State Park (referred to as "the Park" throughout this document) consists of Shad and Milburn Landing Areas. Shad Landing Area (referred to as Shad Landing) contains 544 acres and Milburn Landing Area (referred to as Milburn Landing) 370 acres. Both of these Areas of the Park are located within Worcester County along the Pocomoke River on the Eastern Shore of Maryland. The Park is within forty miles of Assateague State Park, Janes Island State Park, Ocean City, Crisfield, and Salisbury. Pocomoke River State Park is a centrally located Park on the Lower Eastern Shore of Maryland. Shad Landing is located 3.5 miles south of the town of Snow Hill along U.S. Route 113 and Milburn Landing is located 7 miles northeast of Pocomoke City along MD Rt. 364. The general location of the two Areas is shown on **Map 1: Location**.

Significance and Setting

Both Shad and Milburn Landing are connected to various other State owned lands within the Pocomoke watershed **(Map 2: Pocomoke Region Lands). Note: This map can be used as a guide in acquiring contiguous blocks of public lands that have natural resource significance.** The Maryland Department of Natural Resources (referred to as DNR hereinafter) manages 449,061 acres of land owned by the State of Maryland. These lands are referred to as "units" and are designated according to their significance, resource management practices, and recreational focus, or legislation enacted by the Maryland General Assembly. Various types of land units, their definition, and acreage are provided in **Appendix 1** of this Plan.

In addition to Pocomoke River State Park, the Pocomoke State Forest, Chesapeake Forest lands, Pocomoke Wildlife Management Area, and various Heritage Conservation Fund sites form a large continuous area of State-owned lands within the Pocomoke watershed (See *Map 2: Pocomoke Region Lands* and **Table 1: Pocomoke Region State Lands**). These areas provide various recreation opportunities. Managed by the Maryland Park Service (MPS), Shad and Milburn Landing provide the most extensive recreational opportunities. Camping, environmental education programs, hiking, fishing, canoeing, kayaking, bird watching, boating, and picnicking are some of the available recreation activities. In comparison the Wildlife Management Area (WMA) is managed primarily for wildlife habitat by the Wildlife and Heritage Service (WHS) of DNR. Wildlife related recreational opportunities such as hunting and bird watching occur within the WMA. Similarly, Heritage Conservation Fund (HCF) sites are managed by the WHS. The State Forest is managed for multiple-use by the Maryland Forest Service along with the Chesapeake forest lands. Details on these land units are provided in *Appendix 1*.



Pocomoke River State Park Land Unit Plan

Map 1: Location Map

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

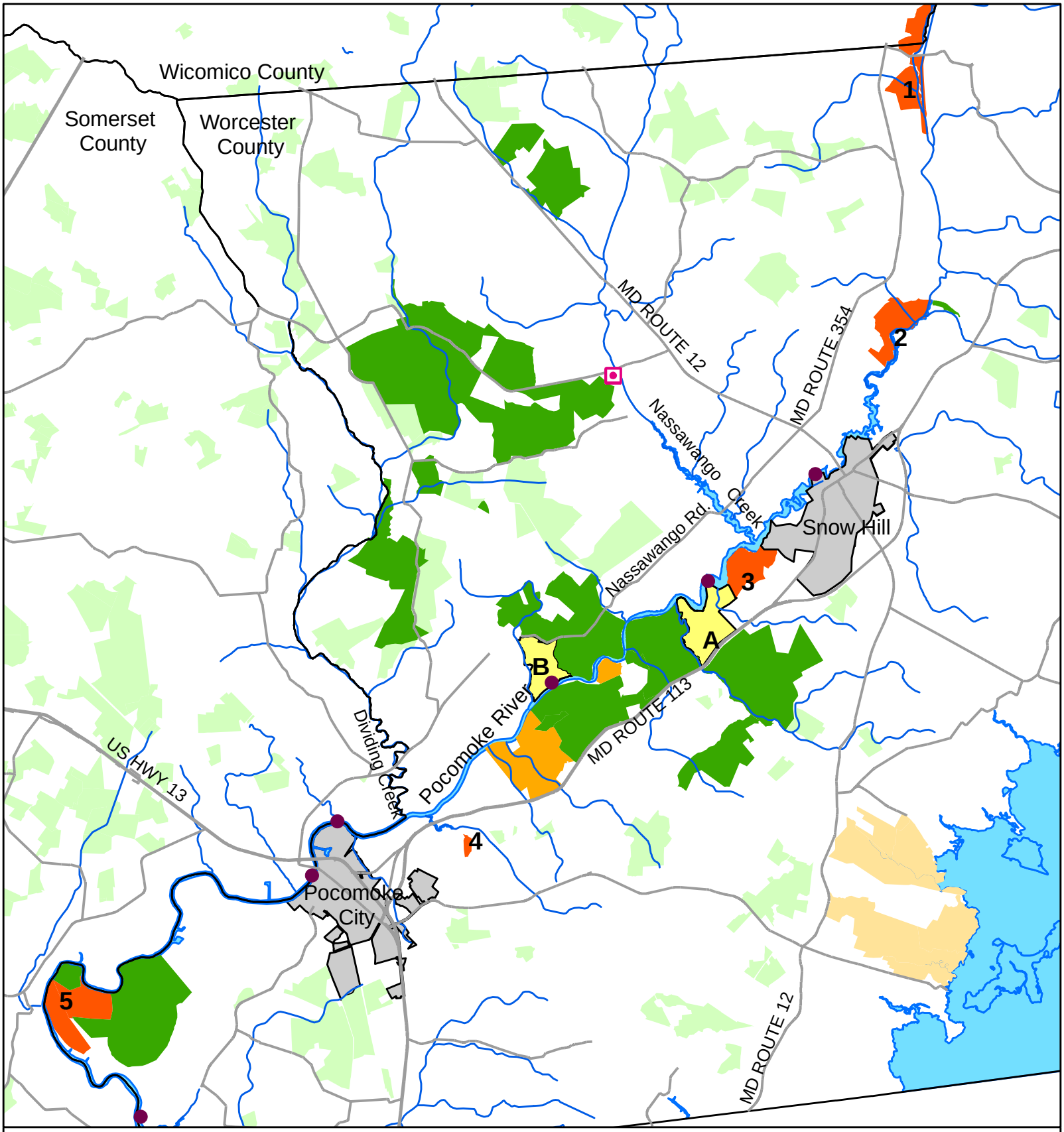
This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

Legend

- State Park
- Heritage Conservation Fund Site
- Wildlife Management Area
- State Forest
- Chesapeake Forest
- Shoreline Boundary
- City Boundary

N

0 5 10 20 30 40 50 Miles



Pocomoke River State Park Land Unit Plan

Map 2: Pocomoke Region Lands

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

0 0.5 1 2 3 4 Miles

Legend

- Pocomoke River SP
- A Shad Landing Area
- B Milburn Landing Area
- Chesapeake Forests
- Pocomoke River SF
- Pocomoke River WMA
- E.A. Vaughn WMA
- Heritage Cons. Fund Sites
- 1 Shockley, Freeman, Jones Tract
- 2 Olney Tract
- 3 E. Jones Van de Graff Tract
- 4 Ewing Tract
- 5 Hickory Point HCF
- Municipality Boundary
- County Boundary
- Nassawango Iron Furnace
- Public Boat Ramp
- Water Boundary
- Roads

N

Table 1: Pocomoke Region State Lands

	Land Unit Type	Acres
Pocomoke State Forest	State Forest	13,350
Chesapeake Forest	Chesapeake Forest	3,025
Pocomoke River	Heritage Conservation Fund Site	1,115
Pocomoke WMA	Wildlife Management Area	1,008
Shad Landing Area	State Park	544
Milburn Landing Area	State Park	372
Total		**19,414**

Local Area Attractions and Activities

Public Parks and Boat Ramps

The town of Snow Hill has two parks along the Pocomoke River, Byrd Park and Sturgis Park. Byrd Park has two boat ramps, a canoe launch, a small pier, two picnic pavilions and pathways leading to the pavilions and to the waterfront. Sturgis Park has a pavilion with picnic tables and Byrd Park has parking facilities for vehicles with boat trailers.

Pocomoke City has four parks along the Pocomoke River. The largest, Cypress Park is 70 acres in size and contains two picnic pavilions, a river walk and a 0.5 mile nature trail. It also has a boat ramp. Cedar Hall wharf is another facility that provides boater access to the Pocomoke River with two boat ramps. This ramp is located in Cedar Hall at the end of Cedar Hall Road. There are parking facilities for vehicles with boat trailers. Additional public boat ramps are located at Laurel Street Park and Winter Quarters Public Golf Course. Pocomoke City Parks provide boaters with a total of 15 boat slips. Laurel Street Park is 1 acre in size and has one boat slip. The Main Street Dock, which is connected to Cypress Park, has 14 boat slips. The first two nights docking at any Pocomoke City boat slip are free, after which the daily fee is $17. The monthly fee to rent a boat slip is $165 and the annual fee is $575. There are additional charges for electricity use.

Furnace Town and Nassawango Creek Preserve

Furnace Town Living Heritage Museum and the Nassawango Creek Preserve are 4 miles north of Snow Hill. Furnace Town is a 19th century iron furnace set in a restored 19th century industrial town and is located adjacent the Nassawango Creek Preserve. Furnace Town is 25 acres and the Nassawango Creek Preserve, owned by The Nature Conservancy, is 9,000 acres. Visitors to the town and preserve have access to the Paul Leifer Trail, a one mile trail through upland forest and Cypress Swamp. An entrance fee of $4 for adults and $2 for children includes entry to both the preserve and to Furnace Town.

The Miss Rai Riverboat

The Miss Rai Riverboat takes passengers from Byrd Park in Snow Hill along the Pocomoke River to Shad Landing and Milburn Landing. The Miss Rai began operation in the year 2000 carrying a maximum of 52 passengers twice a week to the parks. Children ride for free and adult passengers pay $15 for an interpreted tour of the Pocomoke River. During the 2006 Worcester County Fair, The Miss Rai made three trips

with passengers to Shad Landing. In 2005, the Miss Rai ferried passengers from Snow Hill to Shad Landing for a family Independence Day celebration returning to Snow Hill after the fireworks. During annual festivities such as the Chicken Festival and the Blessing of the Combines, the Miss Rai offers round trip rides to the Parks for a reduced fare.

Regional Demographics

Worcester County has a relatively large and growing population. Of the eight counties on Maryland's Eastern Shore (excluding Cecil County), Worcester County has the second largest population. Among the twenty-three counties in Maryland, in terms of total population, Worcester County ranks sixteenth. Over the past 30 years some areas in Worcester County have seen their population grow by more than 100%. The population of Worcester County in 2005 was 49,400, which represents a 6.1% increase from the 2000 population of 46,563. Worcester County's average growth rate between 2000 and 2005 was 1.2% which is slightly higher than the state of Maryland's 1.15% average growth rate for the same time period. Regionally, the towns of Snow Hill, Pocomoke City and Salisbury have shown population trends identified in **Table 2** below.

Table 2: Population Trends of Local Municipalities

	1990	2000	2001	2003	2005	% change 2000-2005
Snow Hill	2,217	2,416	2,402	2,345	2,323	- 3.8
Pocomoke City	3,922	4,108	4,095	4,022	3,909	- 4.8
City of Salisbury	20,592	23,265	23,329	24,692	26,295	13.0

Note: Data for this table obtained from Maryland Department of Planning

As shown in *Table 2*, the town of Snow Hill and Pocomoke City have experienced slight population declines in the past couple years while the City of Salisbury has seen an increase in population during this same period. However, the population of Snow Hill is expected to double within the next decade. This is because Snow Hill has recently annexed approximately 1,000 acres of farmland with the intent to develop the land into mixed uses including 2,200 new homes. The new development, called Summerfield, will border the Pocomoke Heritage Conservation Fund Site (Van de Graf Tract) located northeast of Shad Landing Area.

Comprehensive Plan for Worcester County

The Worcester County Comprehensive Plan was adopted by the County Commissioners on March 7, 2006. One of the Plan's primary goals is to preserve the County's natural resources and character by concentrating growth in areas that are already developed and preserving areas rich in natural resources. Land cover and economic data tell a story of a County rich in and dependent on natural resources. Currently, forests dominate the landscape with 53% of land cover as forest and 33% as agricultural lands. Wetlands comprise 6% or 18,858 acres of the County and barren lands make up only 1% with 2,425 acres. Urban lands cover 7% (or 21,558 acres) of the county. Tourism is the county's highest employer, accounting for 60% of the county's labor force. Major industries in the past were agriculture, forestry, and seafood. The Comprehensive Plan

seeks to balance the natural resources with sustainable development and at the same time preserve a high quality of life.

Planning Process and Purpose

The Purpose and Structure of the Land Unit Plan

This Land Unit Plan was developed to document existing resources, improvements, and to guide the resource management and public use at Pocomoke River State Park for the next 10 to 15 years. The Plan makes recommendations for improving current facilities and for adding additional improvements aimed at meeting the needs of current and future visitors at the State Park. While this Plan does not contain solutions to every issue that may arise within the Park, it does raise concerns regarding specific issues such as forest management, exotic species and connections to adjacent communities. Further, the Plan makes recommendations related to these. Therefore, this land unit plan should be used as a framework from which to approach the goals for management of Pocomoke River State Park. Any proposals or issues that may come up in the near future that are not covered in this Plan will be handled as a project review proposal that will be scrutinized for compatibility with the goals and strategies identified in this Plan.

This Plan organizes information starting with location, historical background, visitor survey, and existing conditions to issues and concerns, goals and strategies, and proposed improvements with the cost of making these improvements along with a timeframe for implementing the Plan. It also contains a summary of current staffing with recommendations for additional staffing that would ensure a smooth operation of the existing and proposed improvements.

Planning Process

Plans are written for State owned land units for a number of reasons. These include the following:

1. When land is purchased and the Department is trying to determine the best use for the land;
2. When an existing land unit has an outdated Plan;
3. When requests are made on Land Units that may not be in keeping with the Department's mission;
4. When rare species of plants or animals are discovered on the Land Unit; and
5. When current conditions change due to increased public use and/or the need to modify management of resources; and
5. Or some other combination of the reasons listed above.

Until now a formal Land Unit Plan for Pocomoke River State Park has never been developed. A plan for management of the Pocomoke River as a scenic river was completed in 1982, and a plan for Pocomoke State Forest was completed in 1995. Therefore, this plan seeks to address specific needs and issues of Pocomoke River State Park which is comprised of Shad and Milburn Landing Areas. Goals, strategies, and recommendations were developed with input from department staff as well as public input received via surveys.

Plan Development

The basic steps involved in the development of a Plan are as follows:

- Identify existing conditions and resources;
- Assess the type of land in relation to its regional setting, recreation and resource conservation needs;
- Analyze the physical site and its natural, cultural, and recreational resources;
- Establish a Departmental Interdisciplinary team and obtain periodic input from this team;
- Establish a public involvement process to obtain input;
- Review proposals for alternative uses of the land;
- Create conceptual plans for various land holdings;
- Obtain public input on the draft Plan; and
- Complete and adopt the Plan for the land unit.

In keeping with this process, contacts were made with the United States Army Corps of Engineers (USACOE), the United States Department of Agriculture, the Maryland Historical Trust, Maryland Geologic Survey, State Archives, Worcester County Public Schools, Furnace Town Living Heritage Museum, the Park Manager, resource professionals within the DNR, local government officials, and the public. As listed above the first step undertaken was to conduct an evaluation of the site's existing conditions and to obtain background information on the Park and the adjacent lands. Later a Departmental interdisciplinary (ID) team was established consisting of resource professionals, including a fisheries biologist, wildlife biologist, natural heritage ecologist, forester, engineer, Critical Area Commission staff member, Natural Resource Police (NRP) officer, and the land manager.

A draft Plan was circulated for review to the ID team and was updated with their input. This draft will be taken to the public for their comments. A public review began with a meeting scheduled for December 11, 2006. The 30-day public comment period ended January 11, 2007. All comments received during the public meeting and the subsequent 30-day comment period, were used in updating this draft Plan which will be presented to the Secretary of DNR for his approval.

Historical Background

Acquisition History

Shad and Milburn Landing through a license agreement were acquired by the state as part of the Pocomoke River State Forest on June 27, 1939. The property was deeded to the State from the Federal Government and was part of a land transfer between the United States Government and the State of Maryland. As identified in the deed, these lands cannot be sold or transferred until the lease expires in June 27, 2038. However, on March 29, 1955, a license indenture between the United States Government and the State of Maryland fully transferred 8,746 acres indefinitely to the State.

These 8,746 acres are known as "Land Utilization" (LU) lands and comprise approximately 67% of the current acreage of Pocomoke State Forest. When LU lands were transferred from the Federal Government pursuant to the Bankhead-Jones Farm Tenant Act of 1937, it was stipulated that these lands must only be used for forestry, wildlife, and recreational purposes.

Pocomoke State Forest current acreage of 13,350 is comprised of both LU lands and acreage acquired from private property owners. A portion of these lands was re-designated from Pocomoke State Forest to State Park land. A total of 370 acres were transferred from the State Forest in 1972 to create Milburn Landing. No additional land has been acquired to increase this Park's acreage. All of Milburn Landing's acreage is comprised of LU lands.

Shad Landing was created in the early 1960's when 144 acres were acquired from private citizens (refer to **Table 3**). In 1966 State Forest lands were added to Shad Landing to complete the current 544 acre park. None of the Shad Landing acreage from the State Forest was Land Unit (LU) lands.

Table 3: Shad Landing Property Acquisition

Previous Owner	**Acreage**	**Date**
George Edward Mason	7.79	March 1962
William Purnell	2.0	July 1962
Mary Dryden	7.58	July 1962
John Perdue	0.36	July 1962
Lela Mason	126.27	November 1964
Transfer from State Forest	400	1966
Total	**544**	

Regional History

In order to ascertain the history of the Park it is important to determine the history of the region. Therefore, this section will provide a general history of Worcester County as it relates to the area surrounding Pocomoke River State Park.

Worcester County was first inhabited by Paleo Indians who entered the area around 9000 B.C. Evidence of these Indians is provided by clovis points which are long chipped stone tools. These Paleo Indians did not settle into distinct tribes as they were primarily hunter gatherers.

The Archaic period from 6500 to 1000 B.C. continued to see Native Americans as hunter gatherers with dispersed populations organized into bands which consisted of several extended families. The era 3000 B.C. was a time of climatic and environmental transition as the climate became warmer and drier. At this time, the interior of Worcester County looked much as it does today with the Pocomoke River flowing through the center of the county bound on both sides with wetlands. This environmental transition led to increased population growth and a more sedentary lifestyle. Waterfowl, fish, and shellfish became more important dietary components.

The Woodland period started in 1000 B.C. and ended in 1650 A.D. The appearance of ceramic fossils marks the beginning of this period. The introduction of maize agriculture led to increased food production and a more sedentary lifestyle. This was the beginning of the Late Woodland period. Approximately 900 A.D., agriculture became widely practiced. Primary crops were maize, beans, and squash. As more food was produced, settlement patterns changed. Permanent, year round villages were established as food was plentiful. While villages were established, overall population was still very sparse prior to the arrival of colonists. It is estimated that the population of Worcester County Native Americans never exceeded 300 individuals. However, several major tribes lived throughout the Lower Eastern Shore. Neighbors of the Pocomoke tribe included the Nanticoke, Assateague, Piscatoway, and Accohannock tribes. These tribes are all part of the larger Indian linguistic family, the Algonguin Nations. The Pocomoke nation lived exclusively along the Pocomoke River.

Colonization of the area by English settlers began around 1660. As English colonists began to patent land formerly occupied by Native Americans, increased conflict led to the establishment of reservations. Many of these reservations were patented by English colonists who sought profit via the fur trade. While they owned the land, they allowed the Native Americans to live there. In return, they traded valuable furs such as beaver. According to the region's historical experts, Rountree and Davidson, colonists patented 16,350 acres in the Pocomoke River Drainage Basin by 1665. By 1690, 58,040 acres were patented. By 1720, most land capable of supporting agriculture had been patented by colonists.

A large 10,000 acre reservation (which was the largest of reservations) called Askiminoconsin, was located just north of the town of Snow Hill and east of Nassawango Creek. This reservation was created in 1678, but was constantly under pressure from land speculators seeking to encroach upon the Native American's territory. The Pocomoke tribe along with neighboring tribes such as the Assateague lived here. In 1686, after formal complaint, the boundaries of Askiminoconsin were surveyed which allowed the reservation to exist safely for the next forty years. In 1726, John Parker, a landless former indentured servant, patented land within the reservation attempting to

establish himself as a planter with his son. This was the beginning of the end for the Askiminoconsin reservation. With plantations encroaching upon their territory, the leader of Askiminoconsin, Chief Daniel, petitioned the Maryland government to stop the encroachment in 1726. No action was taken to stop this encroachment as both English laws and local governmental officials effectively turned a blind eye to the Pocomoke tribe. After a final petition in 1728, the majority of the Native Americans living at Askiminoconsin moved north through Delaware into Pennsylvania and New York and became assimilated into northern tribes such as the Iriquois. Some Native Americans may have resided in the area as late as 1746.

Worcester County, formerly part of Somerset County, was created in 1742. At that time Snow Hill was the largest town and was named the county seat. Snow Hill, settled in the 1640's was charted in 1686. Snow Hill is the oldest chartered town in Worcester County.

Pocomoke City on the other hand was established in 1670 and had numerous other names such as Stevens Ferry, Meeting House Landing, Warehouse Landing, and New Town, prior to being called Pocomoke City. Tobacco and grain cultivation, logging, fishing, trapping, and iron ore smelting were the primary economic activities, with cabinet making, ship building, hat manufacturing, and leather tanning having secondary importance. The Nassawango Iron Furnace was once used to smelt iron ore and was the center of a lively village of three hundred residents. Operation of the furnace was abandoned in 1850 because it could no longer compete on the national market. Although, the functional operation of the furnace was short, less than thirty years, the furnace is significant historically for utilizing hot-blast technology in iron ore smelting and is the best surviving example of this technology within the United States.

The Civil War period leading up to 1865 brought many changes to Worcester County. Worcester County was heavily dependent on agriculture and the growing of grains prior to the war. Slavery was common in Worcester County and loyalty to the Union and Confederacy was divided. The Pocomoke River played an important role as a corridor for the Underground Railroad. The dense cypress swamps surrounding the River helped runaway slaves on their journey north.

After the Civil War, the Pocomoke River was heavily used as a means of transporting goods before land passage via roads and railroads improved. Shipbuilding also became a prominent industry until the early twentieth century. Schooners and steamboats plied the river, stopping at many landings and wharves between Pocomoke City and Snow Hill. Near Snow Hill, navigation was eased by cuts which straightened portions of the approach to town. Eventually railroads and then highways replaced waterways as the primary means of transportation. There are several old decaying landings and wharves which can still be found along the Pocomoke River.

Archaeology

Known areas of archeological interest or reported sites are on record with the Maryland Historic Trust and their maps reveal generalized areas of archaeological interest. Specific site information is not released because additional site research is needed. Therefore,

future developments at the Park will be sent to Maryland Historic Trust for review (as deemed necessary) to ensure that archeologically significant sites are not disturbed.

The closest site listed on the National Register of Historic Places is the Nassawango Iron Furnace which was listed on October 31, 1975. The Furnace is currently the key feature of Furnace Town Living Heritage Museum, which is located north of Snow Hill at the intersection of Millville Road and Old Furnace Road along Nassawango Creek (refer to *Map 2: Pocomoke Region Lands*).

Visitation Information

Pocomoke River State Park visitation numbers presented in the table below represent calendar years 2001-2005 and includes both Shad and Milburn Landing visitors. Visitation was divided into three categories: day visitors, overnight visitors and visitors who stay in cabins. Total annual visitation is also recorded (See **Table 4**).

Table 4: Visitation from Day Use, Camping, and Cabins

Visitors	**2001**	**2002**	**2003**	**2004**	**2005**
Day visitors	150,262	187,123	65,585	65,468	62,519
Camping visitors	49,417	47,345	57,374	37,759	39,272
Cabin visitors	5,277	6,089	5,914	6,867	7,014
Total annual visitation	**204,956**	**240,557**	**128,873**	**110,094**	**108,805**

Summary

While day use visitation has decreased, numbers for both camping and cabin visitors have remained steady. This dramatic decrease in daytime visitor numbers can be attributed to the tracking methodologies used by the Park. Overnight campers and cabin visitors can be tracked via their fees, while daytime visitors do not pay an entrance fee and therefore pose a challenge in tracking their numbers. Possible means of calculating fairly accurate day-visitor numbers are: a vehicle tracking counter installed at the entrance to the Park or a staff controlled entry station for collecting a fee for day-use visitors. However, this Plan does not make any recommendations for charging a fee for day users visiting the Park.

An analysis of data for overnight visitors reveals that their numbers have remained consistent with people visiting the Park from as close as Snow Hill, Maryland to as far away as Ohio and North Carolina. With the projected population increase for the area as well as the improvements recommended later on in this Plan it is expected that day use visitation will increase in the following years at the Park.

Pool attendance for 2004 -2006 has remained relatively steady increasing slightly in 2006 (See **Table 5**). Pool visitors include day, camping and cabin visitors but are not broken down by visitor type.

Table 5: Pool Attendance

Year	**Pool Attendance**
2004	8022
2005	7851
2006	9520

Visitor Survey

Visitor Survey Overview

Visitor Surveys were conducted in the months of October 2005, and May, June and July of 2006. Attempts were made to survey as many Park visitors as possible by targeting special events and holiday weekends. The October 28th and 29th visitor survey coincided with Fright Night. The May 26th and 27th survey was conducted over Memorial Day weekend. Two surveys were conducted during the month of June with the first of these targeting students and teachers participating in the Shad Landing Experience and the second one conducted during the Chicken Festival held at Snow Hill's Byrd Park. The Chicken Festival survey differs from others conducted during the writing of this plan since it was held outside of the Park boundaries with the intent of obtaining local resident input. The July 1st and 2nd survey was conducted over Fourth of July weekend. As recommended by the planning literature, at least 10% of the visitors were surveyed during any survey period. This is to ensure a statistically significant number of surveyed candidates.

In summary a total of five surveys were conducted with 673 completed survey forms. A sample copy of the survey form is provided below. Survey questions targeted visitor type and origin as well as opinions on facilities, activities, and overall park experience. Questions #7 and #8 on the form below provided an opportunity for visitors to comment on issues not covered by other questions.

Survey Form

Pocomoke State Park Visitor Survey

Name and Hometown:

1) How many approximate miles did you travel to get here?
2) How many people are in your party? ____
3) Are you a: **First time visitor** or a **Returning visitor** (circle one)
4) Are you an: **Overnight camper** or a **Daytime visitor** (circle one)
5) **Please rate the following aspects of the park** (**circle one**):

	Bad			**Average**					**Excellent**
a) Overall Park Experience	1	2	3	4	5	6	7	8	9 10
b) Park Facilities	1	2	3	4	5	6	7	8	9 10
c) Available activities	1	2	3	4	5	6	7	8	9 10
d) Camp Store	1	2	3	4	5	6	7	8	9 10
e) Swimming Pool	1	2	3	4	5	6	7	8	9 10

6) **In addition, would you be in favor of….please circle:**	**YES**	**NO**
a) Air conditioning in all cabins	**YES**	**NO**
b) Additional Nature Center activities	**YES**	**NO**
c) Additional electric hookups at campsites	**YES**	**NO**
d) Continuing to operate the Pool?	**YES**	**NO**
e) Would you be interested in forming "Friends of Pocomoke State Park" group? If yes, please write your name, number, and address on the back of this form.	**YES**	**NO**

7) Additional comments on activities you would like to see made available at the Park
8) General comments to improve your Pocomoke State Park experience

Summary of Survey Results

Fright Night Survey: October 28th and 29th 2005
A total of 192 surveys were completed during Fright Night out of 2,700 visitors who participated in Fright Night. Of the visitors 30% were children and 70% adult. Only the adults (192 representing 10% of adult visitors) were surveyed.

The majority of park visitors attending Fright Night were from local communities. Those driving less than 30 miles to reach Shad Landing made up 67% of visitors and less than 50 miles made up 90% f visitors. Additionally, 77% of visitors were returning visitors and 85% were daytime visitors as opposed to overnight visitors. The average number of people per party was four.

Park visitors rated various aspects of the Park on a scale of 1 to 10, with 1 being the worst and 10 being the best. The average responses are provided below.

Table 6: Average Fright Night Survey Results

Overall Park Experience	8.95
Park Facilities	8.80
Available activities	8.83
Camp Store	8.73
Swimming Pool	8.73

Park visitors were also asked if they would be in favor of additional improvements at the park and their responses for various improvements are provided below:

- 98 % of visitors were in favor of continuing to operate the pool
- 96 % of visitors were in favor of additional nature center activities
- 92 % of visitors were in favor of additional electric hookups at campsites
- 84 % of visitors were in favor of additional air conditioning for the cabins

Memorial Day Weekend Survey: May 27th and 28th 2006
A total of 169 surveys were completed during Memorial Day weekend. Of these, 152 surveys were completed by overnight campers out of a total of 873 overnight campers. Only 17 surveys were completed by daytime visitors.

The majority of park visitors surveyed were overnight campers who traveled more than 100 miles. Of these, 66% drove more than 100 miles and 76% drove more than 50 miles to reach Shad Landing. Additionally, 57% of visitors were returning visitors and 90% were overnight as opposed to daytime visitors. The average number of visitors per camp site was four.

One of the questions was related to rating the Park for various issues on a scale of 1 to 10, with 1 being the worst and 10 being the best. The average responses are provided below.

Table 7: Average Memorial Day Weekend Survey Results

Overall Park Experience	8.59
Park Facilities	7.90
Available activities	7.88
Camp Store	8.08
Swimming Pool	6.58*

* Out of 91 visitors a total of 42 surveyed put N/A for the question related to the swimming pool since it was closed for repairs during the Memorial Day Weekend. Further, 16 people rated the pool as a "1" since it was not open. Therefore, the rating for the "Swimming Pool" could be lower than normal due to its closure.

Another question asked visitors if they would be in favor of additional improvements at the park and their responses for various improvements are provided below:

- 95 % of visitors were in favor of continuing to operate the pool
- 86 % of visitors were in favor of additional nature center activities
- 68 % of visitors were in favor of additional air conditioning
- 60 % of visitors were in favor of additional electric hookups at campsites

Shad Landing Experience Survey: June 2006

Each year (since 1994) sixth grade students from Worcester County Public Middle Schools have participated in the Shad Landing Experience. This program is designed to expose students to the outdoors. In 2006, a total of 537 students and 34 teachers from three schools participated. Out of a total population of 571, a total of 58 survey forms were completed representing 10% of the attending student population. Also to be noted is that these students represent only daytime visitors and the responses to questions are for this type of visitors who happen to be local residents traveling less than 10 miles to reach the Park. At least 82% of these visitors identified themselves as repeat visitors to the Park.

One of the questions was related to rating the Park for various issues on a scale of 1 to 10, with 1 being the worst and 10 being the best. The average responses are provided below.

Table 8: Average Shad Landing Experience Survey Results

Overall Park Experience	8.12
Park Facilities	7.21
Available activities	7.92
Camp Store	8.00
Swimming Pool	5.24

In response to whether visitors would be in favor of additional improvements at the park their responses were:

- 93 % of visitors were in favor of continuing to operate the pool*
- 89 % of visitors were in favor of additional nature center activities
- 85 % of visitors were in favor of additional air conditioning
- 76 % of visitors were in favor of additional electric hookups at campsites

*Note: The pool was closed for repairs during this year's Shad Landing Experience.

Chicken Festival Survey: June 23, 2006

On June 23rd, a visitor survey was conducted at the Chicken Festival. The festival was held in Byrd Park in Snow Hill, MD. Two staff members conducted the survey for approximately three hours prior to the event being closed on that particular day due to thunderstorms. During this time a total of 99 people were surveyed 70 of who had previously visited Pocomoke River State Park. Of the remaining 29 people respondents who had not visited the State Park, 13 were from Maryland with 8 from Worcester County. The remaining 16 were from out of state, mostly from nearby Delaware and Virginia, and had not visited the Park due to distance and lack of knowledge regarding the Park.

Of the 70 people surveyed who had previously visited the Park, the majority (72%) were from Worcester County and the remaining were from various Maryland counties. Very few visitors were from outside the State. Daytime visitors made up 83% of those surveyed. The **Table 9** below summarizes in a nutshell responses from the 99 people surveyed on key questions relevant to this group.

Table 9: Reasons for Park Visitation from Chicken Festival Survey

Hiking/Nature Appreciation	27
Canoeing/Boat Launching	23
Swimming Pool	20
Camping	18
Nature Center	16
Pavilion Rentals	15
Fishing	15
Other*	18

* church event, school trip, nature photography, biking, bird watching, lifeguard lessons, children's programs, picnicking, picnicking, picnicking, ORV trails, ORV trails, biking, Fright Night, to relax, and summer activities

Once again visitors rated the Park for various issues on a scale of 1 to 10, with 1 being the worst and 10 being the best. The average responses are provided below.

Table 10: Average Chicken Festival Survey Results

Overall Park Experience	8.5
Park Facilities	8.3
Available activities	8.1
Camp Store	7.6
Swimming Pool	8.1

Finally, visitors responded in the following manner on questions related to additional improvements at the park:

- 92 % of visitors were in favor of continuing to operate the pool
- 85 % of visitors were in favor of additional nature center activities
- 70 % of visitors were in favor of additional air conditioning
- 68 % of visitors were in favor of additional electric hookups at campsites

July 4th Weekend Survey: July 1st and 2nd 2006

The 4th of July survey was conducted on Saturday July 1st, and Sunday July 2nd at both Shad and Milburn Landing State Parks. A total of 155 visitors were surveyed with 23% at Milburn Landing and 78% of these at Shad Landing. Of the 155 surveyed 93 were completed by overnight campers and 62 by daytime visitors. The total number of overnight visitors at the Park was 592; 93 surveys represent almost 16% of this population as surveyed.

At least 50% of the overnight campers had traveled greater than 100 miles with the remaining driving greater than 50 miles to the two Parks. Additionally, 70% of these visitors were returning visitors with each visitor group having 5 people in their group.

Once again visitors rated the Park for various issues on a scale of 1 to 10, with 1 being the worst and 10 being the best. The average responses are provided below.

Table 11: Average July 4th Weekend Survey Results

Overall Park Experience	8.88
Park Facilities	8.50
Available activities	8.43
Camp Store	8.38
Swimming Pool	8.75

Responses to a question on additional improvements at the park are provided below:

- 84 % of visitors were in favor of additional air conditioning
- 82 % of visitors were in favor of additional nature center activities
- 70 % of visitors were in favor of additional electric hookups at campsites
- 99 % of visitors were in favor of continuing to operate the pool

General Comments and Suggestions for Improvements (673 surveyed)

"Like" Comments (from 136 surveys)

1) Excellent Park.
2) I always have a great time here.
3) Overall, a very good experience.
4) We have been coming to the Park for 20 years and really enjoy it.
5) The Park is one of the best on the East Coast!
6) Keep up the good work.
7) Trails through the swamps are very good.
8) The park is very clean.
9) Like the marina and boat launch facilities.
10) Always great here for family.
11) Nice, level clean campsites.
12) We love camping here.
13) Fright Night is a fine idea for the community!
14) Like the quiet and peaceful nature of Milburn Landing.
15) Nice central location, easy access to multiple sites.

16) First time visitor- will be back for another visit!

"Dislike" Comments (from 114 surveys)

1) Bathrooms are not clean.
2) Seems like the restrooms under the camps store serve all of Water's Edge and Day Use visitors. It took too long to shower.
3) Need soap holders and shower curtains.
4) The bathrooms can be improved. They haven't changed in 20 years. Capacity of these bathrooms needs to increase. There is no privacy in some of the showers.
5) The swimming pool is too expensive to use.
6) Need to have the pool open.
7) Prices are too high for campers to use the Pool. Would like to see a $20 family pass that is good for the entire weekend.
8) Central reservation system is not informed about specific details of Park.
9) Have noticed less ranger presence over the years. They are still needed.
10) Need camp areas to be more patrolled for Quiet Time after 11 PM.
11) The camp store is limited in supplies.
12) Have combinations to mini cabins in Milburn available on site so that we don't have to drive to the camp store in Shad Landing to get them.
13) Ground bees were a problem at our campsite and throughout the Park.
14) Over the past several years, the park has not been very accommodating to the schools in the Shad Landing Experience.
15) I do not like the new digital sign at the entrance to Shad Landing.

Suggested Improvements

1) Increase the amount of community events at the Park.
2) Increase the amount of programs offered.
3) More programs during the week.
4) Vary activities from week to week and year to year. Seem to have the same activities every Memorial Day.
5) Would like to see water hookups at the campsites.
6) Additional electric hookups at campsites.
7) Segregate electric campsites from non-electric campsites.
8) Would like to see a $20 family weekend pass for the Swimming Pool for campers.
9) Additional sprinklers at the wading/kiddie pool would be nice.
10) A nearby pavilion to rent, would be a nice addition.
11) Upgrade restroom facilities.
12) More restrooms around the camp store. They were always crowded.
13) Renovate the playground in the big central field.
14) Baseball and Basketball Courts.
15) Would like to see additional hiking trails.
16) More access to longer bike trails.
17) On the side of the main road, a separate path for bikers.
18) Would like to see more food in the Camp Store.
19) Provide firewood on the honor system at Milburn Landing.
20) Would like to see an aviary by the Nature Center.

21) More educational signage.
22) There used to be a boat tour in the 80's. I would like to see that come back.

Friends of Group

A number of State Parks have organizations called "Friends of _____ Park" that have volunteers with varied backgrounds who provide valuable services to their parks. This service could range from trail maintenance and construction, sign replacement, policing public gatherings etc. Currently Pocomoke River State Park does not have a "Friends of" group. Question 6e asked if visitors would be interested in forming such a group. A total of 57 people out of 673 people surveyed indicated that they were interested in forming a "Friends of Pocomoke River State Park" group. These people were contacted by the planning staff and invited to the Public Meeting for the Plan that was held in December 2006. The first "Friends of Pocomoke River State Park" meeting was arranged to be held by Park staff shortly after the public meeting. Items to be discussed include scheduling volunteer events, reviewing previously held events that have been currently cancelled due to staffing requirements, bringing back events obtaining non-profit status, expanding membership, and scheduling of future meetings for the group.

Existing Conditions

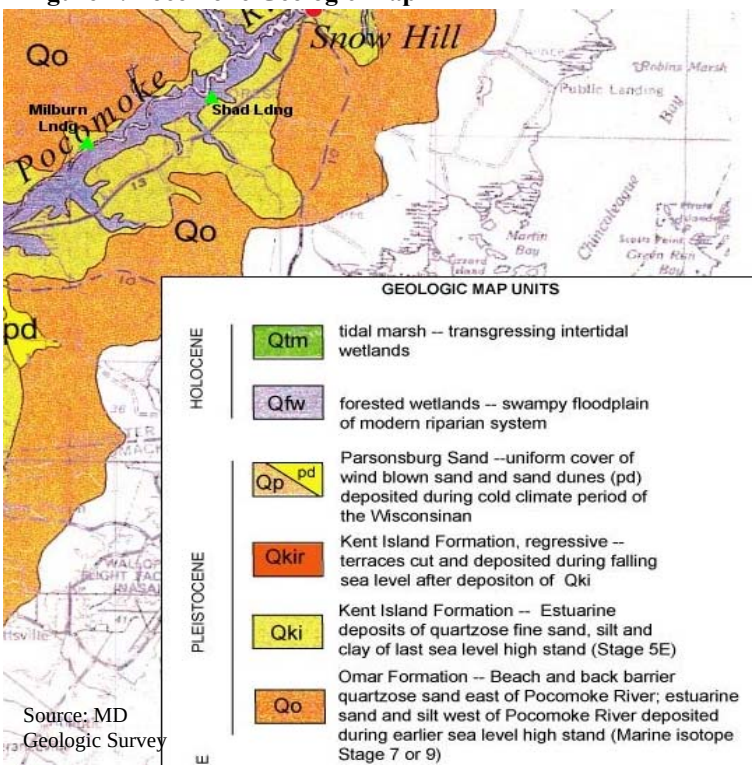
Climate

Climate data reveals the average long term temperature and precipitation patterns for any given region. The Pocomoke region has a relatively mild climate. Geographically located between the Chesapeake Bay and the Atlantic Ocean as well as along the River itself, this abundance of water has a moderating effect on the region's climate. Pocomoke River State Park temperatures range from -6 to 102 degrees Fahrenheit, but average temperatures range from 37 degrees Fahrenheit in January to 77 degrees Fahrenheit in August. Average yearly precipitation is 49.2 inches, and average snowfall in the Pocomoke area is 11.7 inches per year.

Geology

Pocomoke River State Park lies within the Atlantic Coastal Plain and is very young in geologic terms. More specifically Pocomoke River State Park is located along the edge of the floodplain in the Kent Island Formation within the Atlantic Coastal Plain. Formed during the Pleistocene epoch of the Quaternary period, the Park was formed less than 200,000 years ago. In contrast, Pre-Cambrian rock formations of the Blue Ridge area in Maryland can be as old as 3.5 billion years.

Figure 1: Pocomoke Geologic Map



Source: MD Geologic Survey

The Pocomoke River drains a complex of a Pleistocene barrier island and a Pleistocene back bay. Sandy, quartz-rich barrier beach deposits lie along the eastern portion of the river basin and fine grained (muddy) estuarine/back bay deposits dominate the western portion. The River's swampy floodplain (forested wetlands) cuts into several formations: the Kent Island Formation (see **Figure 1**), comprised of estuarine sediments deposited during the last sea level high stand, approximately 120,000 years ago; and the Omar Formation, beach, back barrier and estuarine sediments deposited during an earlier sea level high stand more than 180,000 years ago. These fine grained sediments are thought to be the source of groundwater rich in reduced iron, contributing to the formation of bog iron, particularly along Nassawango Creek. A small amount of iron ore deposits were historically used as bog iron. Gravel and sand are the primary mineral resources of the

Coastal Plain and are used by the construction industry. There are plentiful groundwater aquifers throughout the region.

Soils

Soils can be classified as having *slight, moderate, or severe limitations* for recreational development. Soils with slight limitations are defined as having properties that are generally favorable to development; with these limitations being minor and easy to overcome. Moderately limited soils require planning, design, and sometimes special maintenance in order to accommodate development. Soils with severe limitations are defined as having properties unfavorable for development. These limitations can only be overcome through costly soil reclamation, intensive maintenance, or limited use. Areas with slight or moderate limitations represent areas where potential development could occur. Areas with severe limitations should be minimally considered for future development and only when there are no other feasible alternatives available (See **Map 3A: Soils and Topography Shad Landing** and **Map 3B: Soils and Topography Milburn Landing)**.

Soils have their own classification system. Soils are grouped into 12 orders and further classified through distinctive suborders, great groups, sub groups, families, and series. There are fifteen distinct soil series present within Shad Landing and sixteen soil series and found at Milburn Landing.

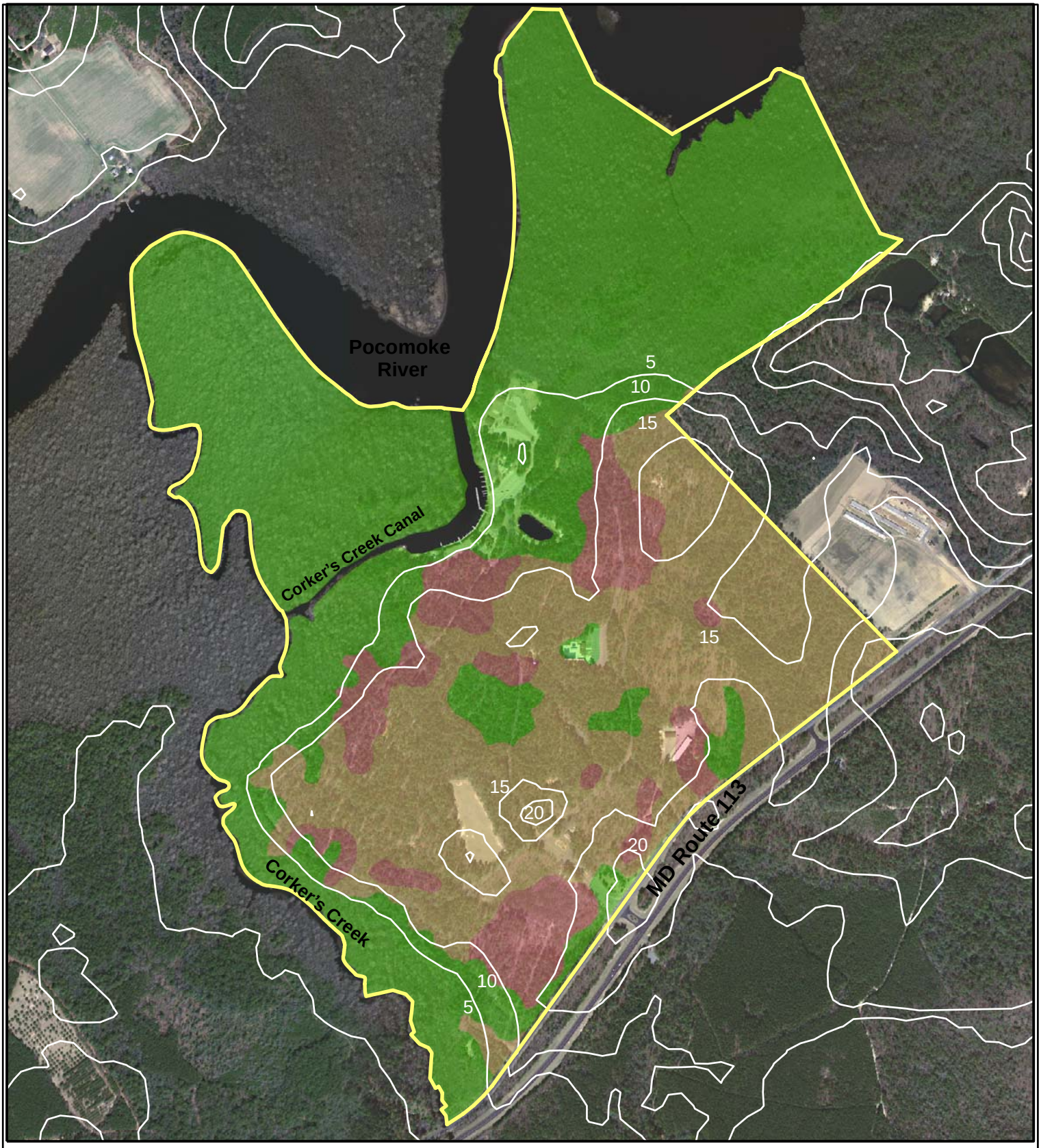
The general characteristics of the top three soil series will be presented. Information on other soil series can be found in **Appendix 2**. Additional information on these soil series is found in the 2005 Worcester County Soil Survey. Provided below, are the fifteen soil series found within Shad Landing in order of decreasing area of coverage at the Park.

1) Puckum
2) Cedartown
3) Evesboro
4) Galestown
5) Klej
6) Rosedale
7) Runclint
8) Udorthents
9) Zekiah
10) Chicone
11) Askecksy
12) Manahawkin
13) Hammonton
14) Fort Mott
15) Mannington

The first three soil series (listed above) make up 65% of the soil types found at Shad Landing. A brief description of these three soil series are provided below.

<u>Puckum</u>

There are 232 acres of Puckum soils within Shad Landing. These soils have good potential to support habitat for wetland wildlife. However, there are *severe limitations* to recreational development. This is primarily caused by the poor drainage of Puckum soils. These soils were formed from thick organic deposits coming from freshwater swamp vegetation. Located on wide flood plains of the mid-Atlantic Coastal Plain, slopes are less than one percent. Puckum soils are similar to Manahawkin soils, and can be



Pocomoke River State Park Land Unit Plan **Map 3A: Soils and Topography Shad Landing Area**

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

Contour interval is 5 feet. Contour lines are white

Legend

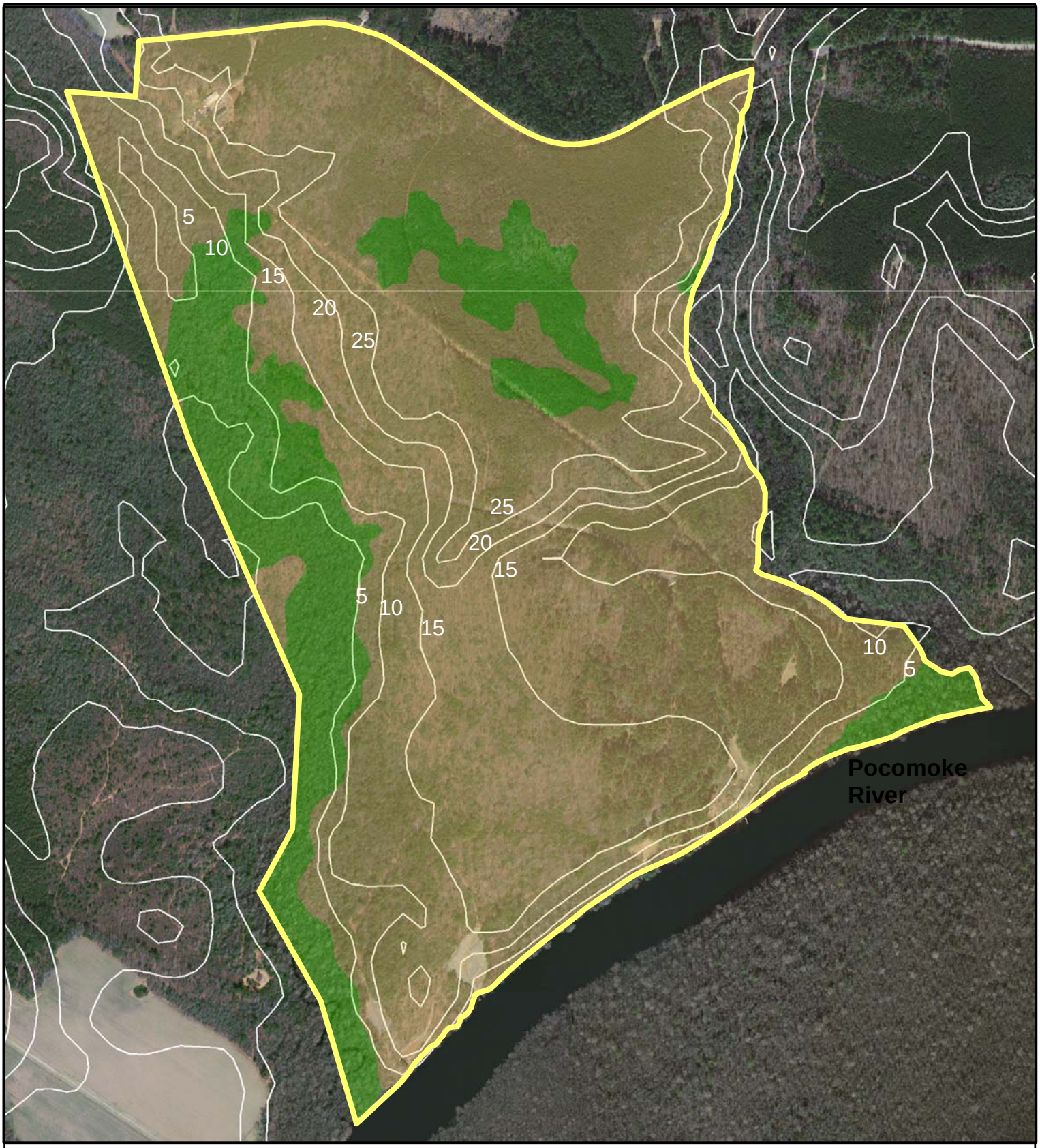
State Park Boundary

Soils Limitations for Recreational Development

Slight Moderate Severe

N

0 500 1,000 Feet



Pocomoke River State Park Land Unit Plan Map 3B: Soils and Topography Milburn Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from the data available at the time of analysis and may not match current conditions.

Contour interval is 5 feet. Contour lines are white

Legend

State Park Boundary

Soil limitations to recreational development

Moderate Severe

0 250 500 1,000 Feet

N

distinguished with their organic horizon that is more than 51 inches thick. These soils are periodically flooded by the Pocomoke River and are acidic in nature.

Cedartown

There are 69 acres of Cedartown soils within Shad Landing. These soils have good potential to support habitat for open land and woodland wildlife. There are *moderate limitations* to recreational development. The soils of the Cedartown series are very deep and are well drained. These soils formed from sand deposits and are located on uplands and ancient dunes of the mid-Atlantic Coastal Plain. Elevations are generally below 25 feet and slopes range from 0 to 5 percent. Cedartown soils are commonly adjacent to Evesboro soils and have an acidic pH. The Cedartown soils differ from Evesboro soils in having redoximorphic features (reactions between soil and water due to oxidation and reduction chemical reactions) between depths of 48 and 72 inches. The thickness of the upper soil horizons ranges from 30 to 50 inches.

Evesboro

There are 53 acres of Evesboro soils within Shad Landing. These soils have poor potential to support wildlife habitat. However, these soils pose only *slight limitations* for recreational development. Evesboro soils are very deep and excessively drained. These soils are located on uplands and ancient dunes of the mid-Atlantic Coastal Plain, and are typically elevated at least 20 feet above mean sea level. These soils are acidic in nature and their slopes range from 0 to 10 percent. Evesboro soils are commonly adjacent to Cedartown soils. The Evesboro soils differ from Cedartown soils in not having loamy subsoil. The thickness of the A and C horizons is greater than 72 inches and gravel content ranges from 0 to 20 percent in the substratum.

Similar to Shad Landing, provided below are the sixteen soil series found within Milburn Landing in order of decreasing area of coverage at the Park:

1) Mattapex
2) Matapeake
3) Manahawkin
4) Nassawango
5) Sassafras
6) Othello
7) Kentuck
8) Indiantown
9) Zekiah
10) Runclint
11) Puckum
12) Galestown
13) Klej
14) Askecsky
15) Fort Mott
16) Hammonton

The first three soil series (listed above) make up 65% of the soil types found at Milburn Landing. A brief description of these three soil series are provided below.

Mattapex

There are 128 acres of Matapex soils within Milburn Landing. These soils provide good potential habitat for open land and woodland wildlife. There are *moderate limitations* to recreational development. The soils of the Mattapex series are very deep and moderately well drained. These soils exist on the upland flats of the mid-Atlantic Coastal Plain. Slopes range from 0 to 5 percent. Mattapex soils are commonly adjacent to Matapeake soils. They differ from Matapeake soils in having redoximorphic features above a depth

of 40 inches. The thickness of the solum ranges from 20 to 40 inches. Mattapex soils are acidic in nature, and the content of fine sand in the subsurface horizons and subsoil may range to 15 percent in some areas.

Matapeake
There are 51 acres of Matapeake soils within Milburn Landing. These soils provide good potential habitat for open land and woodland wildlife, and also pose *moderate limitations* to recreational development. The soils of the Matapeake series are very deep and well drained, and are located on uplands of the mid-Atlantic Coastal Plain. Slopes range from 0 to 10 percent. Matapeake soils are commonly adjacent to Mattapex soils. The Matapeake soils differ from Mattapex soils in not having redoximorphic features above a depth of 72 inches. The thickness of the solum ranges from 28 to 50 inches. These soils are acidic in nature, and have an average clay content in the Bt horizon of 20 to 28 percent. The content of fine sand in the subsurface horizons and subsoil may range to 15 percent in some areas.

Manahawkin
There are 34 acres of Manahawkin soils within Milburn Landing. These soils provide good habitat for wetland plants and fair habitat for wetland wildlife. Manahawkin soils present *severe limitations* to recreational development due to poor drainage. The soils of the Manahawkin series are very deep and very poorly drained. These soils formed from thick organic deposits derived from freshwater swamp vegetation. They are located on wide flood plains of the mid-Atlantic Coastal Plain. Slopes are 0 to 1 percent. Manahawkin soils are similar to Puckum soils. They differ from Puckum soils in having organic horizons less than 51 inches thick. The thickness of the organic deposits ranges from 16 to 50 inches. These soils are very acidic in nature, and are occasionally flooded by tidal fresh water and storm events.

Topography
Generally, development of facilities becomes more difficult with increasing slope. Pocomoke River State Park lies on the Coastal Plain which contains three general elevation zones. The first elevation zone is the flood plain which consists of tidal marshes and swamps and has elevations at or near sea level. The second elevation zone is the Pamlico Terrace which contains elevations from zero to 25 feet above sea level. The third elevation zone is the Talbot and Wicomico Terraces, which contain elevations between 25 feet and 57 feet above sea level. Pocomoke River State Park only has elevations within the flood plain and Pamlico terrace elevation zones. There is no elevation above 25 feet within the Park and all slopes are less than 8 percent. (See *Map 3A: Soils and Topography Shad Landing* and *Map 3B: Soils and Topography Milburn Landing*). Therefore, topography by itself is not a limiting factor for improvements at the Park.

Shoreline Change
Shoreline change can occur as a result of both natural and human processes. Changes in the shoreline occur due to sea level rise, wind action, natural wave action, wave action from boats, and tidal action. Shoreline accretion can occur as a result of sedimentation, dredging and dredge material placement as well as structural and non-structural shoreline

stabilization. The tidal Pocomoke River is influenced by many of these factors. However, shoreline change has not been as dramatic when compared to some other coastal Parks, for example Assateague State Park. The segment of the Pocomoke River between Shad and Milburn Landing is almost entirely buffered by cypress swamps, which reduces natural erosion. However, increased usage of the shoreline for boat launches and increased boating traffic can cause shoreline erosion on a small scale.

As mentioned earlier, shoreline change can be human induced. The United States Army Corps of Engineers (USACOE) is primarily responsible for dredging waterways. In the Pocomoke River, the Corps has performed maintenance dredging of the River in order to facilitate commerce and boat traffic. The majority of effort was spent on the Mud Flats of Pocomoke Sound due to their shallow nature. The Pocomoke River itself is naturally deep with depths up to 45 ft. The Pocomoke River is said to be the deepest river for its width in the United States. Another dredging project was performed at Shad Landing in 1966. The USACOE dug a channel which connected Corker's Creek to the Pocomoke River. This channel is the current site of the Marina at Shad Landing and it is called Corkers Creek Canal. The project entailed creating an entrance to the channel sixty feet wide and six feet deep. The total length of the USACOE created channel was 1,575 feet. A reconnaissance survey was conducted in 1983 to assess the condition of the channel and ensure that there was no shoaling. The dredge material from this project was placed on twelve acres in the Northeast section of the Park and is currently the day use area which houses the marina, camp store, playgrounds, and pavilions. Another survey will be conducted early next year by the USACOE to determine if shoaling has occurred in the federal channel and if there is a need for subsequent dredging.

Vegetation

A variety of plant species thrive within the Park's boundaries (See **Appendix 3)**. When the Park was first acquired, the property mostly consisted of abandoned farm fields and forests which had been cut over. Since that time forests have naturally regenerated creating a wide diversity of plants. Typical forest communities found within the Park are forested tidal cypress swamps and upland forests dominated by loblolly pine and oak trees.

Pocomoke River, Worcester County
Photograph by Peter Stango III

Cypress swamps are typically a southern ecosystem. The cypress swamps along the Pocomoke River are at the northern range of the ecosystem's distribution. Because of this, many southern species occur within the Park at the northern extent of their range. The dominant canopy tree found within Cypress swamps is the Bald cypress (*Taxodium distichum*). Other tree species commonly found within cypress swamps are swamp tupelo (*Nyssa*

biflora), Atlantic white cedar (*Chamaecyparis thyoides*), red maple (*Acer rubrum*), and green ash (*Fraxinous pennslyvanica*). Shrub layer diversity is high despite the mostly closed canopy. Examples of common understory shrub species include winterberry (*Ilex verticillata),* American holly (*Ilex opaca),* sweet pepperbush (*Clethra alnifolia),* swamp azalea (*Rhododendron viscosum),* and highbush blueberry (*Vaccinium corymbosum*). Cypress swamps have a diverse herbaceous layer as well. This is mostly due to diverse habitat caused by tidal flood impulses. These impulses create elevated hummocks and regularly flooded hollows. Slight topographical changes and variation in water levels offer a wide variety of habitats. Examples of common herbaceous species found on higher elevation hummocks include Halberdleaf tearthumb (*Polygonum arifolium*), Spotted touch me not (*Impatiens capensis*), and Lizard's Tail (*Saururus cernuus*). Herbaceous species found in flooded hollows include Marsh Fern (*Thelypteris palustris*), Jack in the pulpit (*Arisaema triphyllum*), and Upright sedge (*Carex stricta*).


Forest Canopy

Upland forests provide a counterpoint to the lowland cypress swamps. These forests are characterized by a mostly closed canopy, diverse shrub layer, and sparse herbaceous layer. The dominant canopy tree within these upland forests is the Loblolly Pine (*Pinus taeda*). Loblolly Pine is important economically as it is the primary harvest tree for nearby Pocomoke State Forest as well as Maryland's Eastern Shore. Over time, the forest will naturally progress through succession to a more hardwood oak dominated forest. Shade intolerant trees such as loblolly pine grow quickly and reach the canopy first. More slow growing hardwood trees such as oak and hickory are shade tolerant and will grow underneath the original canopy, eventually replacing it. Other canopy trees found within the Park are white oak (*Quercus alba*), Southern red oak (*Quercus falcata*), sweet gum (*Liquidambar styraciflu),* and hickory (*Carya spp*.) Common shrub species within these upland forests include wax myrtle (*Morella cerifera*), mountain laurel (*Kalmia latifolia*), viburnum (*Viburnum dentatum*), common greenbrier (*Smilax rotundifolia*), and flowering dogwood (*Cornus florida*). Herbaceous species are less prevalent than in cypress swamps due to increased competition from the shrub layer for sunlight and nutrients. Common herbaceous species include slender woodoats (*Chasmanthium laxum),* bitter panicgrass (Panicum amarum var. amarulum), hyssopleaf throughwort (*Eupatorium hyssopifolium),* and smooth elephantsfoot (*Elephantopus nudatus).*

These plants species perform a vital role within the ecosystem by helping to protect water quality, producing oxygen and improving air quality, as well as providing wildlife habitat. Certain plants provide shelter to wildlife and other plants produce nuts, seeds, berries, and leaves which wildlife can use for food. There are many species of plants within the Park that provide both food and shelter to wildlife.

Invasive Species

Invasive species are organisms that, when moved accidentally or purposefully into new surroundings grow and reproduce quickly and spread aggressively, threatening the integrity of their new ecosystems. Invasive species in Maryland are generally, but not always, non-native to the United States, or are native elsewhere in the US but not in Maryland. These species evolved over ecological time in other countries or regions, and were transported across physiographic boundaries like oceans and mountains, generally by people. They can threaten biological diversity, cause ecological or economic damage, or be hazardous to human health. Invasive species of plants are frequently annuals, or pioneer species, that reach reproductive maturity quickly, produce many easily distributed seeds, exhibit allelopathy and rapidly adapt to natural or anthropogenic disturbance.

Shad Landing and Millburn Landing have comparatively few invasive plants, but these few species cover a great deal of square footage. The primary invader in the Park and the surrounding State Forest is Japanese stilt grass, *Microstegium vimineum*. Japanese stilt grass is an annual grass, germinating in April and flowering and fruiting from late August to late September. In Milburn Landing, extensive patches of Japanese stilt grass border the main road into the campground, and carpet the open areas including the corner by the camper registration office and the youth group camping and picnics areas.

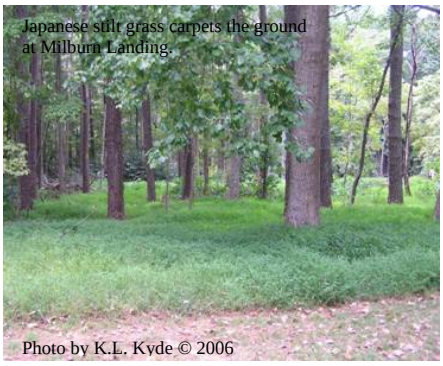

Japanese stilt grass carpets the ground at Milburn Landing.

Photo by K.L. Kyde © 2006

Wildlife

The density and diversity of vegetation within the Park provides excellent wildlife habitat. Wetland habitat, upland forest habitat, and transitional habitat provides one of the premier locations on the East Coast of the United States for birdwatching. The close proximity of the Pocomoke River also facilitates a diverse bird population. The Pocomoke River corridor is a stopping point for the hundreds of migratory birds. There are a wide variety of birds which thrive in different kinds of habitats. Within the Park, it is likely that you would find marsh birds, forest interior dwelling bird species, raptors, and some open water habitat birds. Some of the birds you would be likely to see within the Park and along the Pocomoke River are the Wood Duck (*Aix sponsa*), Wild Turkey (*Meleagris gallopavo*), Barred Owl (*Strix varia*), Chuck Will's Widow (*Caprimulgus carolinensis*), Pileated Woodpecker (*Dryocopus pileatus*), Eatern Phoebe (*Sayornis phoebe*), Brown Headed Nuthatch (*Sitta pusilla*), White Eyed Vireo (*Vireo griseus*), Hooded Warbler (*Wilsonia citrine)*, Summer Tanager (*Piranga rubra)*, and the Bald Eagle (*Haliaeetus leucocephalus*). For a full list of bird species found at the Park see **Appendix 4**.


Wood Ducks

While there are over 150 bird species found within the Pocomoke Region, there are far fewer mammal species. Thirty six mammal species can be found within the Park and the surrounding area. Larger predators such as the bobcat, black bear, and gray wolf have been extirpated from the Eastern Shore of Maryland. Expanding coyote populations as well as increased populations of gray and red foxes have partially occupied the predator niche within the ecosystem. However, these species aren't nearly as effective as their predecessors. White tail deer is the largest mammal found within the Pocomoke Region. Without natural predators, the population of whitetail deer is effectively managed through hunting. By decreasing the deer herd population, the remaining deer have a better chance of survival with a greater array of resources at their disposal. Of the 36 mammal species, the majority are insectivores and herbivores. A full list of Mammals can be found in **Appendix 5**.


White-tailed Deer

The wetlands surrounding the Pocomoke River provide excellent habitat for reptiles and amphibians. Amphibians are dependant on water for a portion of their life-cycle while reptiles are not. The only poisonous animal found in the Pocomoke Basin is a reptile, the northern copperhead (*Agkistrodon contortrix*). Northern copperheads are often confused with other snakes such as the corn snake and the hog-nosed snake. While these snakes share a triangular shaped head and similar coloration, the easiest way to tell them apart is by looking at the shape of their eyes from a safe distance. Copperheads have more angular slitted eyes which appear yellow in the daylight. Non-venomous snakes have round eyes. The largest aquatic reptile in the Pocomoke region is the Redbellied Turtle (*Pseudemys rubriventris*) whose shell can measure ten to twelve inches. A full list of Reptiles and Amphibians can be found in **Appendix 6**.


Redbellied Turtle

The Pocomoke River and its surrounding tributaries support a large number of fish. According to the Maryland Biological Stream Survey, total estimated fish abundance in the Pocomoke River is 2.9 million individuals. There are a total of 40 fish species including two gamefish species, Largemouth Bass (*Micropterus salmoides*) and Chain Pickerel (*Esox niger*). Largemouth bass are predatory fish, eating insects, frogs, and occasionally snakes. Chain Pickerel are opportunistic predators, using their chainlike markings to camouflage themselves. The most abundant fish species is the Eastern Mud-minnow (*Umbra pygmaea)* with population estimates of approximately 1.5 million. The Pocomoke River supports numerous fish species such as Brown Bullhead *(Ameiurus nebulosus)*, Longnose Gar *(Lepisosteus osseus)*, Black Crappie *(Pomoxis nigromaculatus)*, White Perch *(Morone americana)*, Yellow Perch *(Ameiurus natalis)*,

and Channel Catfish *(Ictalurus punctatus)*. Additional fish species are listed in **Appendix 7**. The presence of a wide variety of fish species is a good indicator of ecosystem health.

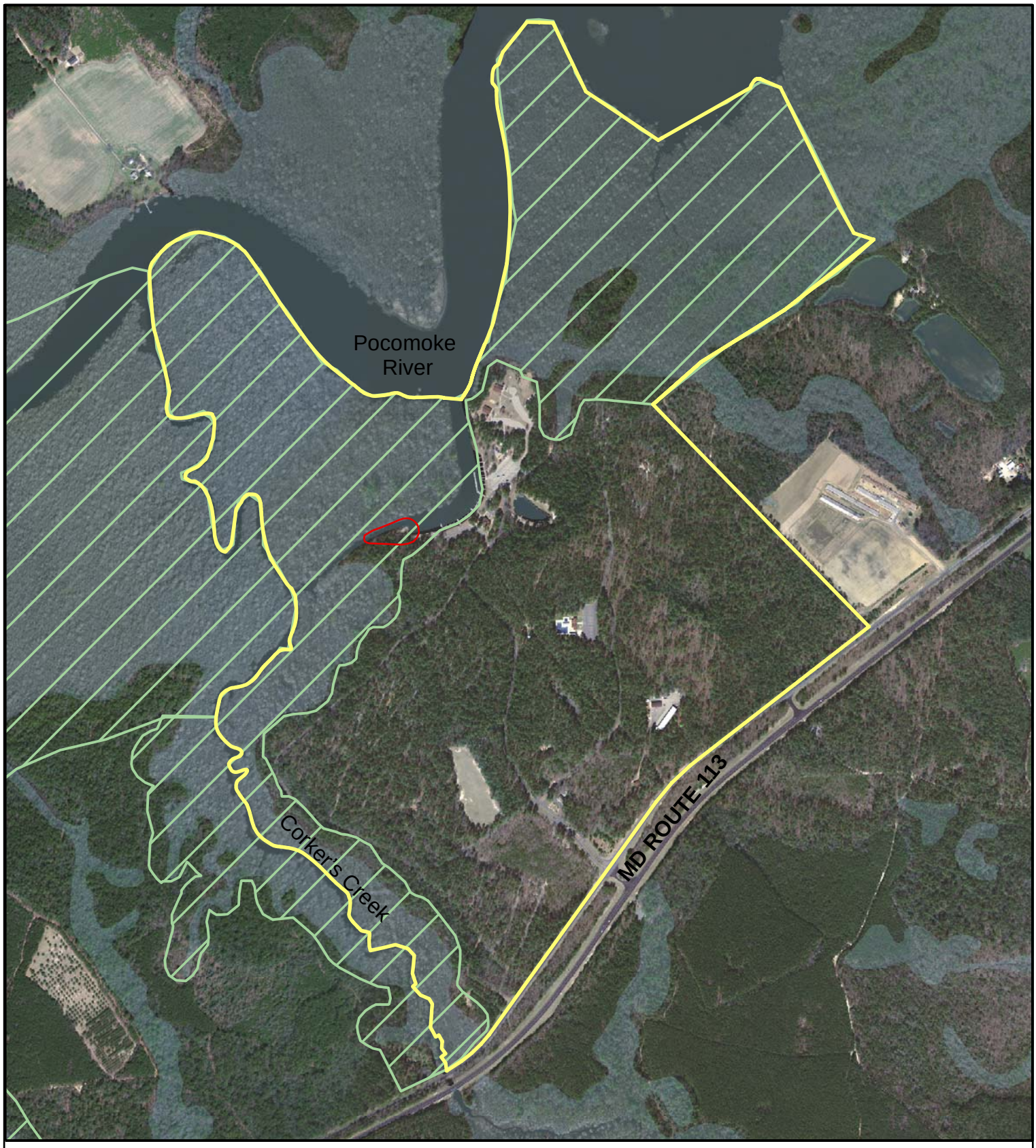
Sensitive Resources

Species of Concern

Rare, threatened, and endangered species are afforded a greater degree of protection than more commonly found species. Populations of species may decline for many reasons. While habitat loss is the primary reason for decline, a combination of multiple factors ranging from disease, natural disasters, pollution, poaching, and predation may contribute to a decline in a species population. Two plant species of particular concern are located within the borders of Shad Landing. A 1.44 acre buffer of their habitat boundaries is located adjacent to Corkers Creek Canal and shown on **Map 4A: Sensitive Areas-Shad Landing**. These two plants are Lowland loosestrife (*Lysimachia hybrida)* which is classified as threatened and Sacciolepis (*Sacciolepsis striata)* which is classified as endangered. These two plants are found in a small remnant of a marsh at the mouth of Corkers Creek. The creek was channelized in 1965 and this small remnant patch of marsh still exists adjacent to the marina. The occurrence of sacciolepis is only the fourth known for Worcester County and the occurrence of lowland loosestrife is only one of three known in Worcester County. This remnant of marsh is threatened both from pollution originating from the marina as well as loss of habitat. Expanding the buffer adjacent to these plants by reducing the area of grass mown as well as monitoring potential invasive species in this small area will help to protect these rare plants.

In addition to these two plant species, the Natural Heritage Program within DNR also has compiled information for ecologically significant areas. These areas are made up of protection boundaries for most of the well known, current and recent rare, threatened and endangered plant and animal occurrences, as well as significant natural community occurrences. The occurrence of these plants, animals, and communities is primarily derived from data entered into the Natural Heritage Program's BIOTICS data system. The protection boundaries also include surrounding habitats which sustain elements of biodiversity as well as provide an appropriate buffer for the protection of habitat as identified by ecologists with DNR's Natural Heritage Program. Within Shad Landing, there are 301 acres of ecologically significant areas. Milburn Landing has 54 acres of ecologically significant area. (See **Map 4B: Sensitive Areas Milburn Landing**).

DNR's Natural Heritage Service also provided a list of rare, threatened and endangered species within a five mile buffer of Shad and Milburn Landing. While not all of these species are likely to occur within the boundary of the Park itself, discussion of these endangered species is necessary to make people aware of their potential occurrence.



Pocomoke River State Park Land Unit Plan **Map 4A: Sensitive Areas Shad Landing Area**

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

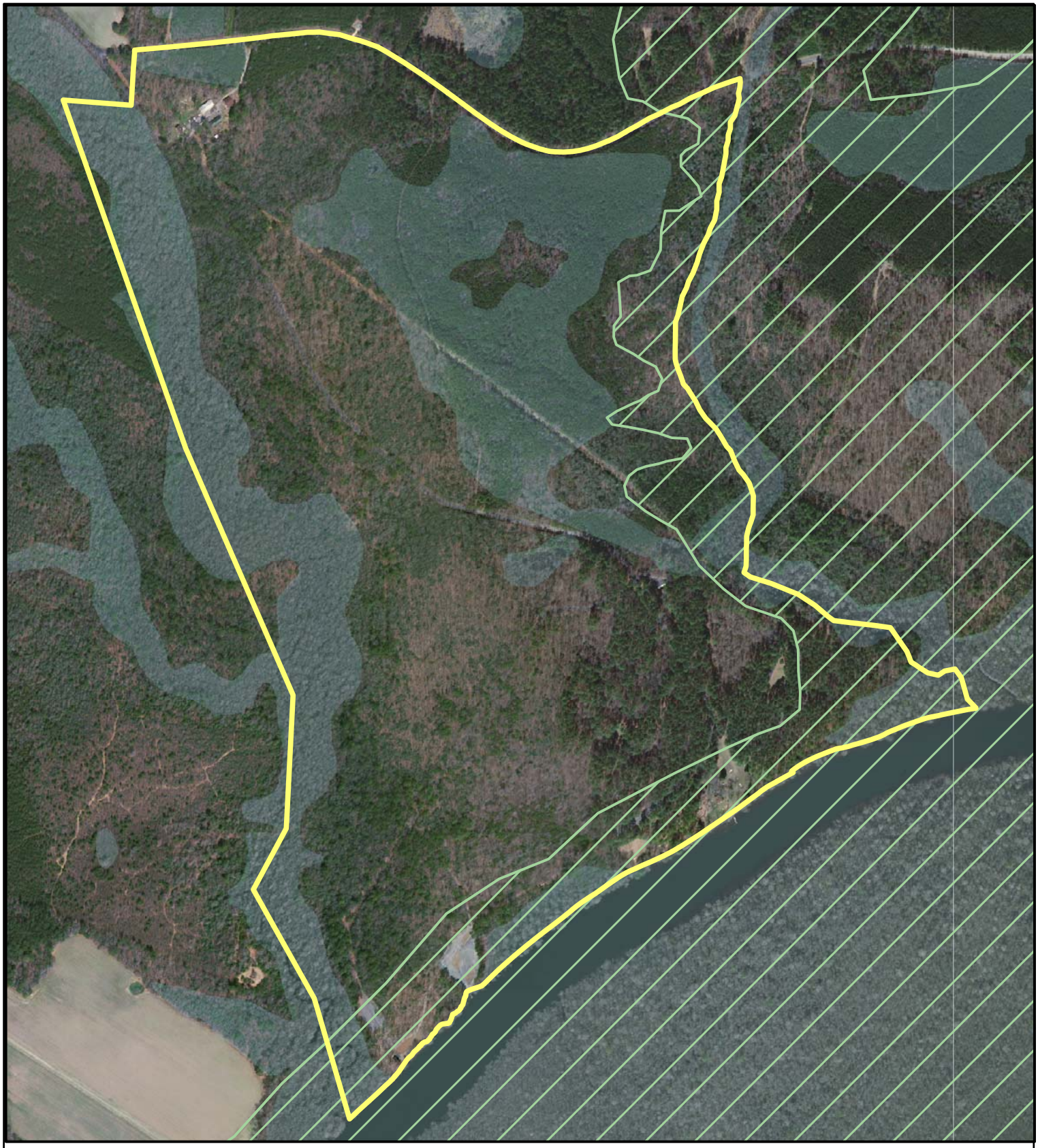
This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

Legend

- State Park Boundary
- Ecologically Significant Area
- RTE Species Habitat
- Wetlands

0 500 1,000 Feet

N



Pocomoke River State Park Land Unit Plan **Map 4B: Sensitive Areas Milburn Landing Area**

March 2007

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Legend

- State Park Boundary
- Ecologically Significant Area
- Wetlands

0 500 1,000 Feet

N

Ninety two species were found within the five mile buffer surrounding Shad Landing and ninety five species were found within the five mile buffer surrounding Milburn Landing.

Table 12: Rare, Threatened, and Endangered Species within a 5 mile buffer

	Shad Landing	Milburn Landing
Number of Endangered Species	29	30
Number of Threatened Species	19	22
Number of Extirpated Species	7	6
Number of Species of Conservation Concern	40	34
Total number of rare, threatened, and endangered species	**95**	**92**

It is important to note that due to the fact that Shad and Milburn Landing are less than five miles apart from each other, there is considerable overlap between these two lists. There is a total of 103 rare, threatened, and endangered species which exist between the two five mile buffer areas. There are a total of 201 rare, threatened or endangered species in Worcester County. Fifty one percent of these species are found within the five mile buffer of Shad and Milburn Landing. The Department will undertake a thorough review of impact to different species referred to in **Table 12** above when projects at either Shad or Milburn Landing are run through the project review process.

Water Quality

Maintaining healthy waters and improving water quality are vitally important to the Pocomoke Watershed. Water quality is affected by a wide variety of natural and anthropogenic activities including but not limited to: soil erosion, nutrient inputs from fertilizer runoff, wastewater treatment plant sewage, automobile exhaust, industry effluents, development and creation of impervious surfaces, climatic conditions, presence of riparian buffers, and human population growth.

The Pocomoke River is a blackwater ecosystem heavily influenced by the cypress swamps which border it. This river has a significant hydrologic connection with these swamps which, along with other riparian buffers, covers 77% of the river's shoreline. These cypress swamps lower the acidity of the water through the decomposition of cypress tree needles, releasing tannic acid and generating the river's characteristic dark color. In addition, the Pocomoke River is very deep for its width. As mentioned earlier in this documant it is the deepest river in the United States for its width with depths of up to 45 feet. Submerged aquatic vegetation is not prevalent in the Pocomoke River because light can not penetrate these deep, dark waters. Maintaining water quality in the Pocomoke River is important for Pocomoke River State Park because in addition to providing habitat for a wide variety of organisms, healthy waters are a positive factor for many of the Park's recreational activities such as fishing and boating.

The Pocomoke River was classified as a scenic river in 1971 by the State of Maryland. As stated in the Scenic and Wild Rivers Act a scenic river is a "free-flowing river whose

shoreline and related land are predominantly forested, agricultural, grassland, marshland, or swampland with a minimum of development for at least 2 miles of the river length" (Maryland Code Natural Resources §8-402(d)(2)). A wild river is a "free-flowing river whose shoreline and related land are undeveloped, inaccessible except by trail, or predominantly primitive in a natural state for at least 4 miles of the river length" (Maryland Code Natural Resources §8-402(d)(3)).

The dominant land use within the Pocomoke Watershed is forest, with agriculture a close second. Within all four sub-watersheds of the Pocomoke River, urban development has been minimal and there has been little change in land use. (See **Table 13**)

Table 13: Land Use Change between 1973 and 2000*

	1973 Percentage			2000 Percentage		
Watershed	Agriculture	Forest	Urban	Agriculture	Forest	Urban
Dividing Creek	19.7	79.6	0.0	20.1	77.5	1.7
Nassawango Creek	26.3	72.8	0.4	25.1	70.8	3.6
Lower Pocomoke	35.1	57.9	3.0	33.7	57.4	4.6
Upper Pocomoke	44.2	55.2	0.7	43.6	52.3	4.0

* Information obtained from the Maryland Department of Planning

Controlling pollutants is achieved through enforcement of the Federal Clean Water Act and the Maryland Clean Water Action Plan. The Federal Clean Water Act of 1972 provided landmark legislation to maintain water quality. The Act's main objective stated in Section 101 is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters so that they can support the protection and propagation of fish, shellfish, and wildlife and support recreation in and on the water. The main functions of the Clean Water Act require States to develop water quality standards for all surface waters, monitor these waters, and identify and list waters that do not meet standards. Individual States are then responsible for developing strategies to bring non-complaint waters into compliance. Maryland complies with the Federal Clean Water Act by classifying non-attainment waters. The Maryland Department of the Environment puts these waters on the 303d list. The Upper and Lower Pocomoke River, Nassawango Creek, and Dividing Creek are currently listed on the 303d list.

Based on the above laws, regulating non-point source nutrients such as nitrogen and phosphorus is a priority for the Pocomoke Watershed. Eutrophication from increased nutrients can cause algal blooms. When these algal blooms die, they produce a high biochemical oxygen demand. Oxygen is used in order to decompose these algae and as a result, dissolved oxygen within the river is reduced. In 1997, algal blooms combined with unique climatic conditions caused an outbreak of killer algae called Pfiesteria within the Pocomoke River. The effects of this outbreak included massive fish kills and detrimental effects to the health of local watermen. While events such as the Pfiesteria outbreak are not common, there are several pollutants which can adversely affect water quality within the Pocomoke River.

Monitoring of water quality within the State of Maryland takes place via numerous programs such as Maryland Biological Stream Survey (MBSS), Maryland Stream Waders, County monitoring programs, and Maryland Eyes on the Bay. Continual monitoring and assessment of water quality is necessary in order to classify waters as compliant or non-compliant.

Watersheds are further classified by Maryland's Clean Water Action Plan which was developed in 1998. The major initiatives of the Plan were to assess water quality on a watershed scale through Unified Watershed Assessments, set restoration priorities based on these assessments, and create Watershed Restoration Action Strategies. The Unified Watershed Assessment classified watersheds into three categories. Category 1 watersheds do not meet clean water and other natural resources goals and need restoration. Category 2 watersheds currently meet clean water goals but may require preventative actions to sustain water quality and aquatic resources. Category 3 watersheds possess pristine or sensitive attributes requiring an extra level of protection. The Upper and Lower Pocomoke Watershed as well as Dividing Creek and Nassawango Creek watersheds are classified both as Category 1 and Category 3 watersheds. Classification of watersheds between Category 1 and 3 is not mutually exclusive because watersheds may vary spatially and the indicators used for classification are different. This indicates that these watersheds show signs of stress and have experienced some degradation but still retain pristine and sensitive natural characteristics in need of protection.

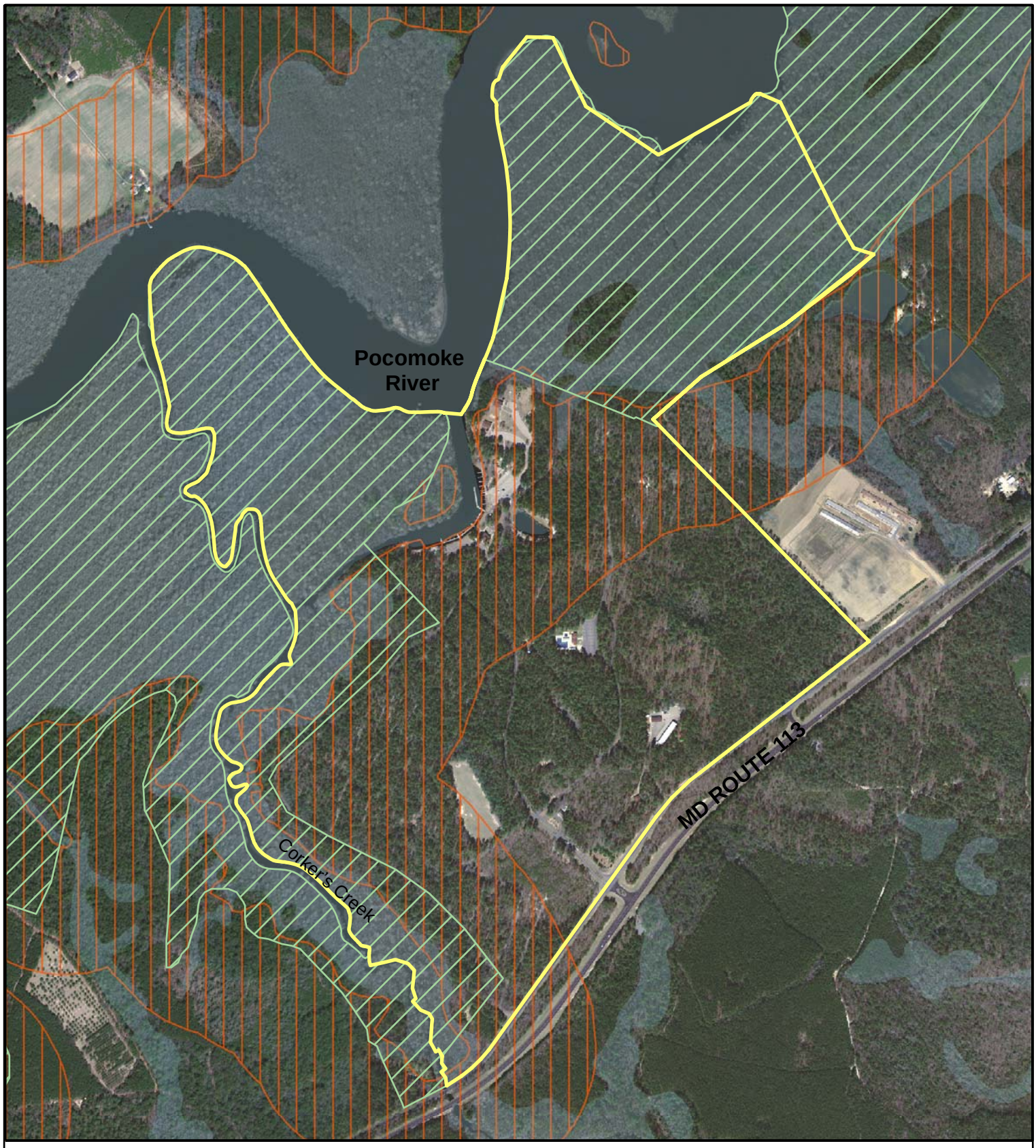
Wildlands

The State of Maryland created a Wildlands Preservation System in 1971. These Wildlands were created through legislation by the General Assembly in response to the Federal Wilderness Preservation System which primarily preserved large tracts of land in the Western United States. The State regulation allows smaller tracts of lands to be considered for Wildlands designation. Wildlands are defined as:

> "…Limited areas of land or water which have retained their wilderness character, although not necessarily completely natural and undisturbed, or have rare of vanishing species of plant or animal life or similar features of interest worthy of preservation for use of present and future residents of the State. This may include unique ecological, geological, scenic, and contemplative recreational areas on State Lands" (Maryland Code, Natural Resources §5-1201).

The State of Maryland currently has 43,773 acres of designated Wildlands. The Pocomoke River Wildland and the Cypress Swamp Wildland are designated Wildlands along the Pocomoke River. The Pocomoke River Wildland is 2,481 acres and contains cypress swamp and upland forests bordering the Pocomoke River from the Wildlife Management Area to the Pocomoke River Heritage Conservation Fund Site (Van de Graff site). Shad Landing has 295 acres designated as Wildlands and Milburn Landing has 38 acres designated as Wildlands. (See **Map 5A: Regulatory Boundaries Shad Landing** and **5B: Regulatory Boundaries Milburn Landing**).

The Wildlands designation is supplemental to already existing designations provided by the Department. For example, a state park containing Wildlands still remains a state



Pocomoke River State Park Land Unit Plan **Map 5A: Regulatory Boundaries Shad Landing Area**

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

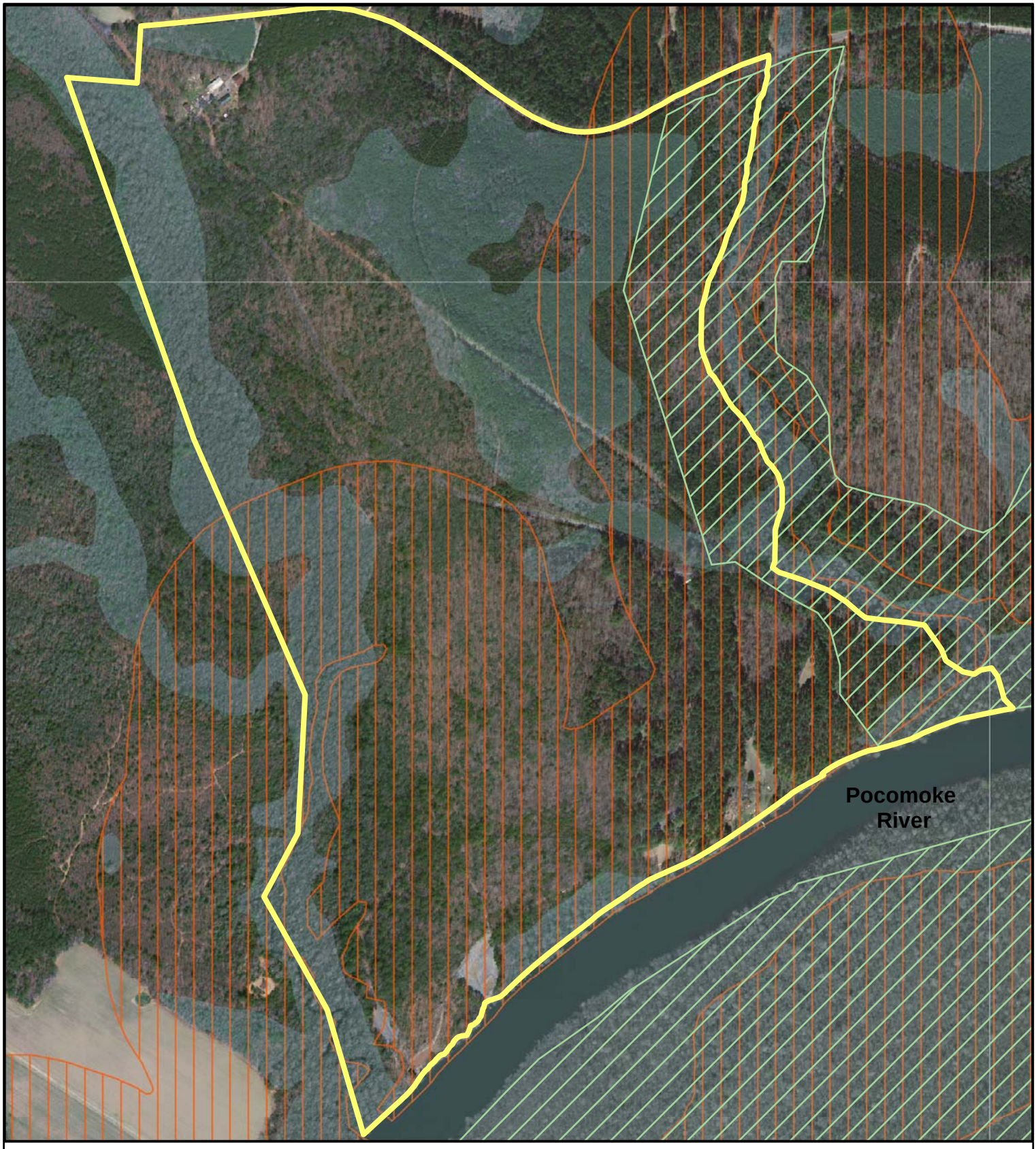
This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

Legend

- State Park Boundary
- Critical Area
- Wildlands
- Wetlands

0 500 1,000 Feet

N



Pocomoke River State Park Land Unit Plan Map 5B: Regulatory Boundaries Milburn Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

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Legend

- State Park Boundary
- Critical Area
- Wetlands
- Wildlands

0 500 1,000 Feet

N

park. Activities consistent with the wilderness character of Wildlands are permitted. Examples of activities include bird watching, hiking, hunting, fishing, trapping, and nature interpretation. Activities restricted on Wildlands include those activities which are inconsistent with sustaining a wilderness environment or those activities which leave a lasting imprint of human activity. For example, the use of motorized vehicles, mechanized equipment, harvesting timber, the construction of new roads and buildings, the introduction of non-native species, and the manipulation of vegetation are all prohibited. However, only in special circumstances and with approval of the Governor and the Maryland General Assembly will certain activities listed above be allowed. Further information on Wildlands regulations can be found in the Code of Maryland Regulations (Maryland Code Natural Resources §8.01.02.01-05).

> "unless necessary to meet the minimum requirements for the purposes of the administration of the area, permanent roads, structures, or installations may not be located or constructed within a Wildland. Except following public notice and hearing, the Governor, within a specific area and in accordance with any regulations the Governor considers desirable, may determine that the following permanent structures and installations in Wildlands will serve the interest of the State and the State's people, and may recommend to the General assembly passage of a bill authorizing: the establishment of maintenance reservoirs; water conservation works; power projects; transmission lines; and other facilities needed in the public interest including road construction and maintenance essential to development and use of specific areas."

Wetlands

The U.S. Fish and Wildlife Service (USFWS) define wetlands as "lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water." For purposes of this classification wetlands must have one or more of the following three attributes:

- At least periodically, the land supports hydrophytes (water-dependent vegetation),
- The substrate is predominantly undrained hydric soil, and
- The substrate is non-soil and is saturated with water at some time during the growing season of each year.

Wetlands are typically both very biodiverse and productive. This is a function of the first part of the definition, "lands transitional between terrestrial and aquatic systems." Because wetlands occupy this edge, they produce a large amount of biomass and a great diversity of living biota.

Generally, there are many different types of wetlands. Swamps, fens, bogs, and marshes are all different examples of wetlands. Wetlands are classified into five distinct systems by the USFWS:

1) Marine- open ocean overlying the continental shelf and its associated high-energy coastline

2) Estuarine- deepwater tidal habitats and adjacent tidal wetlands that are semi-enclosed by land but have open, partially obstructed, or sporadic access to the open ocean and in which ocean water is occasionally diluted by freshwater runoff
3) Riverine- wetlands and deepwater habitats contained within a channel except wetlands dominated by persistent vegetation and wetlands with salinity above 0.5 parts per thousand
4) Lacustrine- wetlands and deepwater habitats situated in a topographic depression that lack persistent vegetation and are over 20 acres in area
5) *Palustrine* - all non-tidal wetlands dominated by trees, shrubs and persistent emergent vegetation as well as tidal freshwater wetlands (as found in Pocomoke River area)

The dominant wetland type within Pocomoke River State Park is palustrine. Therefore, this is the only type of wetland that is described in further detail. The palustrine wetlands are forested with needle-leaved vegetation. The predominant species of needle-leaved deciduous vegetation is the bald cypress tree, and these wetlands are commonly classified as cypress swamps. There are 263 acres of wetlands within Shad Landing. Milburn Landing supports 113 acres of wetlands (See *Map 5A Regulatory Boundaries: Shad Landing* and *Map 5B Regulatory Boundaries: Milburn Landing*).

Cypress swamps are dominated by bald cypress trees (*Taxodium distichum*). These trees are very long lived, living up to 1,000 years. According to a 1953 Maryland Department of Research and Education study, trees were reportedly 80 years of age and measured from thirteen to twenty-four inches in diameter at breast height. Today, these trees would be 130 years old. Bald cypress trees reach maturity when they reach thirty to forty meters in height and forty to sixty inches in diameter. These trees also have distinct pneumatophores or knees which extend above the average water level. These knees function as anchors and are sites of carbon dioxide gas exchange. The cypress swamp at Pocomoke River State Park is an alluvial river swamp fed by both groundwater and flooding pulses from the river. This diversity in water input results in distinct water chemistry from either source. The characteristic “blackwater” for which the Pocomoke is known comes from colloidal humic substances such as leaf and needle litter and contribute to a more acidic pH.

Chesapeake Bay Critical Area
In recognizing the decline in the productivity and quality of the Chesapeake Bay, the Maryland General Assembly passed the Chesapeake Bay Critical Area Act (1984) to guide activity along the shoreline of the Bay and its tidal tributaries. The Critical Area is defined as "all waters of and lands under the Chesapeake Bay and its tributaries to the head of tide and all State and private wetlands as well as all land and water areas within 1,000 feet landward of the boundaries of tidal wetlands and the heads of tides." The program recognizes that the shoreline and adjacent lands are critical to the survival of the Bay's ecosystem. Alteration of the shoreline and watershed generally creates negative impacts on water quality and plant and wildlife habitats, in this case affecting the Chesapeake Bay ecosystem and its aquatic life.

The Critical Area Act (Natural Resources Article Sec. 8-1801 through 1817) established the Chesapeake Bay Critical Area Commission (CAC) and mandated development of criteria to guide both public and private development within the Critical Area boundary. The boundary extends 1,000 feet landward of the Chesapeake Bay and its tidal tributaries. The development criteria for State lands (COMAR 27.02 et. seq.) include specific limitations on development activities within 1000 feet of the landward edge of tidal waters or tidal wetlands. Tree clearing, land disturbance and development are regulated. The 100-foot Buffer (the first 100 feet from tidal water or wetlands) receives even greater protection due to the adverse impacts of development along the shoreline. The measures protect the Chesapeake Bay and its tributaries by preserving forested areas, wildlife habitat, threatened species and anadromous fish (saltwater fish that swim upstream to spawn in freshwater) spawning grounds. In addition, individual development projects on State lands require review and approval by the Critical Area Commission.

The Pocomoke River is bound on both sides by wetlands and is both a tidal river and tributary of the Chesapeake Bay. The 1,000-foot Critical Area for Pocomoke State Park begins at the landward boundary of the Park's wetlands and covers 168 acres within Shad Landing and 206 acres within Milburn Landing. (See *Maps 5A Regulatory Boundaries-Shad* and *5B RegulatoryBoundaries- Milburn*). The proposed improvements listed later in this plan will be designed to be consistent with the Critical Area regulations for State lands. Individual projects will be presented to the Critical Area Commission for review and approval.

Existing Facilities

Shad Landing Facilities

Development within Shad Landing is located south of Corker's Creek Canal and north of Worcester Highway, Route 113. Some of the camp loop and day use development at Shad Landing has taken place as shown in a site development Plan dated September 12, 1962. Development is centered on upland sites with well drained soils. Minimal development exists within the cypress swamp and other sensitive areas surrounding the Pocomoke River (See **Map 6A Existing Conditions- Shad Landing**).

Administration Building

On entering the park from Route 113, the first building encountered on the right hand side is the administration building. This building was designed to function as a ranger station and it is currently used as an administration building for which it does not have adequate space. It has two office rooms and an entrance reception area where visitors stop in for information. This building lacks storage space as well as space for staff meetings/conferences. It has a small parking lot with four parking spaces located at the rear entrance of the building. Americans with Disabilities Act (ADA) facilities at this building include an entrance ramp and a parking space.

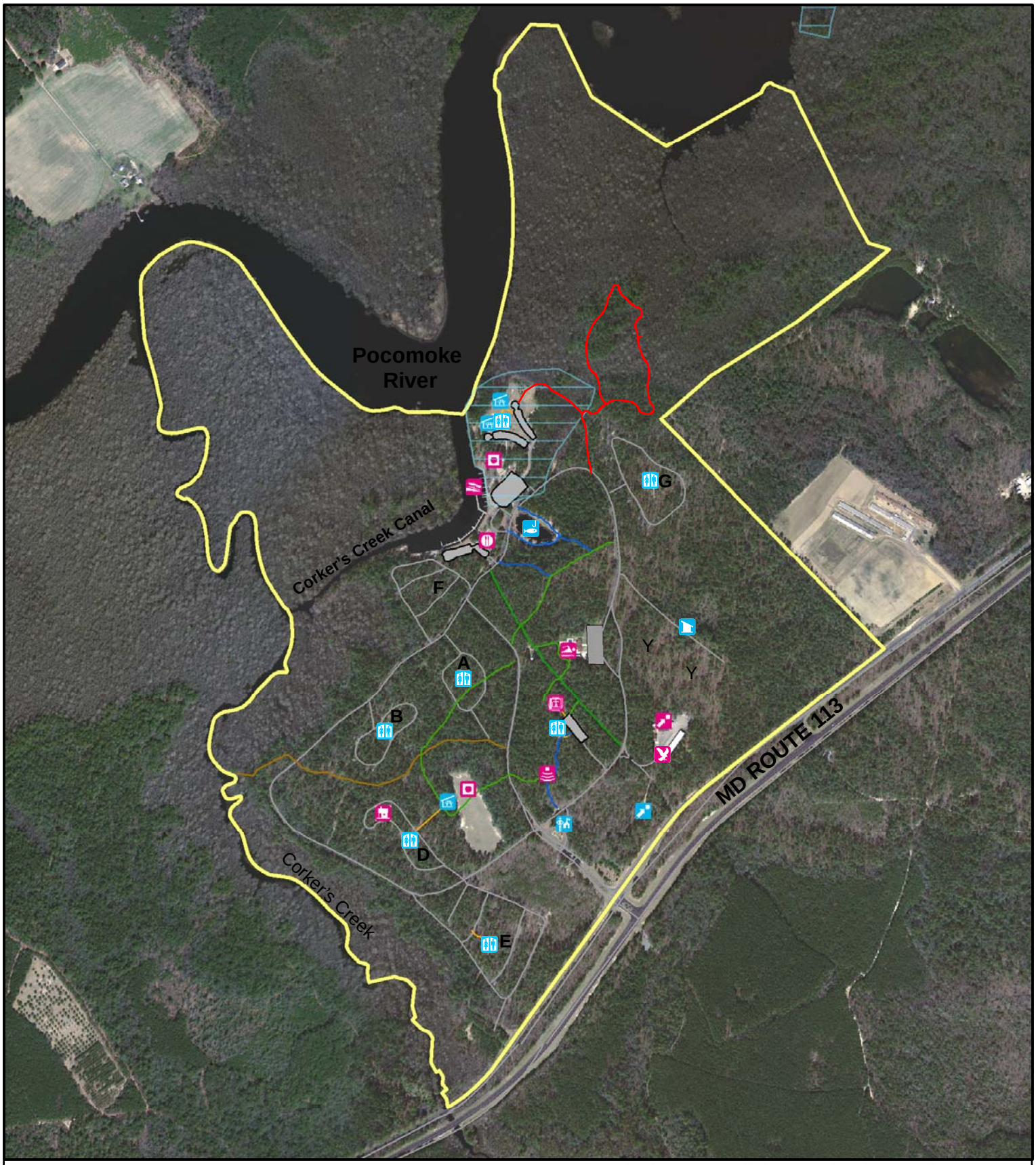
Bunkhouse

The bunkhouse was originally designed as a Park manager's residence and was later converted into office space. The building is located just north of Route 113 between the Maintenance Shop Complex and the current Administration Building. The Bunkhouse currently houses National Civilian Conservation Crews (NCCC). This building was once designed to serve as the Administrative building for the Park but currently does not because it lacks visibility from the Park's entrance. However, it serves as a meeting/conference area as well as a central filing area for the Administrative Building

The bunkhouse is equipped with heat, air conditioning, running water, full bathrooms, a kitchen, and can sleep 12 people at any given time. The building has 3 bathrooms one of which is equipped with a shower facility. A second bathroom has an ADA accessible toilet. Moving the file storage area from the bunkhouse to an Administrative building would make the bunkhouse much more desirable as a rental unit. This would generate revenues at the Park during those times when there are no MCC crews housed in this building. The ADA facilities at the Bunkhouse include an entrance ramp and parking spaces.

Marina/Camp Store Building

Registration occurs at the Marina/Camp Store Building. The upper story, of this two-story building, houses the registration area/camp store and a dining area which overlooks the Pocomoke River. Snacks, sandwiches, souvenirs, camping equipment, groceries, gas, firewood, and boat slip rentals are sold at the camp store. Attached to the camp store is a small area for food preparation. This food preparation area does not have commercial kitchen appliances due to lack of space. Backing up to this semi-kitchen/pantry area is a



Pocomoke River State Park Land Unit Plan — Map 6A: Existing Conditions Shad Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

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0 500 1,000 2,000 Feet

Legend

- State Park Boundary
- Parking Lots
- Dredge Spoil Site
- Administration Building
- Fishing Pond
- Bunkhouse
- Pit Toilet
- Pavilions
- Comfort Station
- Camp Store
- Ampitheater
- Nature Center
- Boat launch/Marina
- Maintenance Building
- Swimming Pool
- Aviary
- Cabins
- Play Area

Camp Loops

- A Fox Den
- B Deer Run
- D Robin's Nest
- E Blue Heron
- F Water's Edge
- G Acorn Trail
- Y Youth Group

Trails

- Trail of Change
- Blue
- Brown
- Green
- Paths
- Roads

N

small office with a computer for tracking campsite vacancies/rentals etc. The dining area overlooking the water contains six tables and can accommodate up to 36 people. In addition to the tables there are a couple couches and a television set.

Restrooms are located on the lower floor along with a laundry room and a game room with 10 game machines. The camp store parking lot has 59 total spaces, two of which are ADA accessible and three of which are reserved for authorized vehicles. Other ADA facilities at the Marina building include entrance ramps leading to the upper story.

Marina/Boat Launch

The boat launch is located between the Marina/Camp Store building to the west and the Algonquin Pavilion to the east and just north of the children's play area and the parking lot. There are 23 boat slips with electric and water hookups, a ramp, unleaded fuel dispensing station, pier, and a small watercraft rental building. Electric hookups range from 30 amps to 100 amps. The cost of renting a boat slip is $100 for a 30 amp boat slip per month and increases in price with the increase in amps provided. There are approximately half a dozen contracts on equal number of slips in any given year and the remaining slips rely on transient boaters. The reason for the low demand is because the Park Marina does not dispense diesel fuel which fuels most large sized boats. The Park has currently secured funding to construct a diesel dispensing station which should be built by the end of 2007.

The marina parking lot has 23 trailer parking spaces which can also accommodate two cars per space. In addition, there are also 17 regular parking spaces, two of which are ADA accessible. Therefore, the marina parking lot has 40 total spaces which are full on most summer and holiday weekends.

Nature Center/Amphitheater

The Nature Center (NC) provides a central location for environmental education. There is no admission fee to the NC and a Park Naturalist staffs the NC. The NC parking lot has 38 spaces, three of which are ADA accessible. The NC exhibits are primarily self-guided, although the Naturalist is available to answer questions. The exhibits at the NC are redesigned every year between January and March. Naturalists along with volunteers help to renovate the NC to continue to keep visitor interest by providing different exhibits every year. The NC offers many interactive educational displays and activities and is decorated with animal tracks, bird silhouettes, posters, and paintings. It has snakes, birds, fish, and turtles on display. Hours, which vary by season, are as follows:

April, May, September and October - Open weekends only.
Memorial Day Weekend through Labor Day Weekend – Open Thursday through Sunday.

The amphitheater is located between the Nature Center and the large open field in the center of the Park. This amphitheater contains several benches, a stage, a fire ring, and an electrical outlet. The path to the amphitheater from the Nature Center is paved and well marked.

The ADA facilities located at the Nature Center/Amphitheater include a ramp, paths, comfort station and three parking spaces.

Camp Loops

A total of six camp loops containing 199 campsites are located off of the main camp road. Each campsite can accommodate six campers and is equipped with a picnic table, fire ring and camper pad. However, the Blue Heron camp loop does not contain camper pads. Instead campers set up their tents on the more natural surface of the forest floor.

Five out of six camp loops have centrally located bathhouses and two camp loops (Deer Run and Acorn Trail) have electric hookups. Robins Nest camp loop currently has seven campsites with electric hookups. Park staff have identified the demand for water and sewer hookups for all the camp loops, specifically the camp host sites need sewer hook ups to attract and keep the hosts. Camp hosts provide free labor (such as security and restroom cleaning) in return for free camping.

Table 14: Camp Loop Amenities

Camp Loop Name	# of campsites	Electric Hookup	# of water hydrants	Bathhouse
Fox Den (Loop A)	30	No	2	Yes
Deer Run (Loop B)	30	Yes	2	Yes
Robin's Nest (Loop D)	29	Yes (7 only)	3	Yes
Blue Heron (Loop E)	50	No	5	Yes
Water's Edge (Loop F)	30	No	3	No
Acorn Trail (Loop G)	30	Yes	5	Yes

The ADA accessible facilities for the Blue Heron and Robin's Nest camp loops include comfort stations and accessible paths to the Blue Heron and to four campsites at Robin's Nest.

Youth Group Camping Site

In addition to the 199 campsites, there are two youth group campsites named Barred Owl and Painted Turtle. Both are located directly east of the swimming pool and south of the Acorn Trail campsites. Each of these sites has a pit toilet, fire ring, water hydrant and several picnic tables. The pit toilets are difficult to maintain and Park staff have recommended that these be replaced with other systems that have easier maintenance and fewer odors.

Cabins

Eight mini cabins are located on the north side of the Robin's Nest camp loop and each cabin can accommodate four campers. The mini cabins are equipped with one double bed and one bunk bed. All of the cabins have heat, electricity, parking and a ceiling fan. Three of the eight cabins have air conditioning units. These cabins are always in demand and have a very high occupancy rate. Two of these mini-cabins are ADA accessible and are slightly larger with two bunk beds in each cabin.

Additional Comfort Stations

Comfort stations are located adjacent to the Nature Center and adjacent to the two pavilions in the current day use area. These comfort stations are in addition to the five bathhouses located in various camp loops, the bathroom in the Marina Services Building and the pit toilet at the youth camp site. If other day use areas are recommended at the Park, then the current rest room facilities will have to be assessed for proximity and ease of use by various user groups.

Maintenance Area

The maintenance area houses vehicles and equipment needed for daily maintenance of the Park. This area has a large parking lot with two garages. One garage has eight bays and the other has five adding up to thirteen bays overall that store vehicles and equipment. An aviary is located adjacent to one of the maintenance garages.

Aviary

The current aviary is located in proximity to the maintenance area and shares the parking lot. The aviary contains two main sections with the first section measuring 26 feet by 40 feet length. This section contains eight cages (4 on each side of a 6-foot hallway) and houses 14 birds. Each cage is approximately 8 foot by 10 feet wide. This section has wooden doors to both the building and the individual bird cages which are made up of PVC piping and metallic wire caging for the wall and the roof. During winter, this section of the building is wrapped in plastic to help protect the birds from harsh weather and strong winds. In mid-March, this plastic is removed. The aviary is equipped with both water and electricity.

A hallway connects the main aviary section to a smaller section that stores additional creatures such as fish, snakes, and turtles. This section unlike the larger section is climate controlled and is fully enclosed with a shingled roof.

Central Field

The Park has a central grass field located between Robin's Nest Camp loop and the amphitheater. It currently has one piece of playground equipment, one small pavilion located on the north western side, and a backstop of a baseball field. Currently, the Brown Trail cuts through this field. A 2001 site plan recommended construction of additional recreational fields to include a basketball court, a volleyball court, a connecting road and a parking lot. Currently, funds are available for completion of an access road, parking lot and a children's play area. The small pavilion's use is expected to increase with the completion of the parking area and the access road.

Swimming Pool Complex

A swimming pool complex built in 1964 has a bath house, a main pool, children's wading pool, pump house, and parking area and is located north east of the Nature Center and south of the Fishing Pond and Marina/Camp Store Building. This complex is open to the public between Memorial Day and Labor Day. The cost of admission is $3 per camper and $5 per general daytime visitor. Swimming lessons are offered at the pool and it is most used by the local community since it is the only public pool in the area.

There are two pools located in the complex with the larger pool shaped as an "L" and with a capacity of 167,000 gallons. It is 42 feet by 82 feet in size (at the longer side) with a depth that ranges between 3 feet to 12 feet. It has a capacity of 250 people. The children's wading pool has a capacity of 3,340 gallons, is 22 feet by 22 feet in size and ranges in depth from 8 inches to 14 inches.

The parking lot has a total of 50 parking spaces with four ADA accessible spaces. The swimming pool is full during most summer weekends and especially during holiday weekends when the pool is open.

Pavilions

The Park has two pavilions, the Algonguin and Manokin, located north of the Marina/Camp Store Building. Each of these pavilions has a capacity of 180 people. These pavilions are equipped with large fireplaces, picnic tables, and charcoal grills. These pavilions are available for rent daily between 8 AM and 8 PM throughout the year for a cost of $180 per day. The Algonguin and Manokin pavilions have a parking lot capacity of 60 and 65 spaces respectively.

As mentioned earlier there is a smaller pavilion located adjacent to the central field. This pavilion has a flat roof, contains six picnic tables, and has water hookup. Due to the lack of parking and related lack of interest from the public in using this pavilion there is no charge to rent this pavilion at the present time.

Picnic Tables

In addition to the picnic tables located at each campsite, there are several other areas that have picnic tables. These are:

- Nature Center
- Playground Area

- Across the Swimming Pool Parking Lot (4 picnic tables)
- Camp Store/Registration building (outside the bath room area)
- Water front area between the Boat Rental shack and the Pavilions.

Park staff has noticed that the picnic tables across from the swimming pool parking lot are always in demand by pool users who set up small family gatherings at these tables thereby indicating the need for a few additional tables at this location.

Trails

The Park has several hiking trails with the Trail of Change (TOC) being the longest trail with 0.7 miles, the TOC showcases how the forest has changed over time. A portion of this trail leads through the cypress swamp adjacent to the Pocomoke River. There are also several smaller trails that connect to various areas of the Park. These trails are marked with directional arrows and colors (green, brown, and blue) and total approximately 2.0 miles. Outside of the TOC the remaining trails are concocted from smaller trail segments that are connected by "illegal" trails created by visitors to make up the remaining 1.3 mile trail system. Although the entire 2.0 mile trail system has been formalized by Park staff with markings and names, these were reviewed during the development of this Plan for their appropriateness and potential removal.

Playground Areas

There are a total of three areas with playground equipment with the primary area located northeast of the Marina Services/Camp Store building. This play area contains a full jungle gym with swings and slides, and has an excellent view of the Pocomoke River. Another area containing a jungle gym is located centrally within the campsites at the north end of the central field and the third area containing a jungle gym is located adjacent to the Nature Center.

Fishing Pond

A fishing pond is located south of the Marina Services/Camp Store Building. Fishing takes place year round and the pond is normally stocked twice a year (in January and March) although additional stocking is done on an as needed basis. Bass, trout, and blue gill are typically stocked. The fishing pond is a warm-water environment and warm water species such as bass are capable of thriving and reproducing within the pond. However, it has been noticed that fishing is most vigorous soon after the pond has been stocked. Access to the pond is provided via three small piers located to the south and east of the pond. All three piers are ADA accessible.

Milburn Landing Facilities

Access to the Park from Maryland Rt. 12 is via Nassawango Road to River Road which forms the main spine running from the entrance to the waterfront developments within the Park. The Maintenance Shop is the first building encountered on entering the Park and is located on the left hand side of River Road. Except for the Maintenance Shop

building all other facilities at Milburn Landing are located further south in the Park and immediately north of the Pocomoke River. An unmanned Ranger Station/Camper Registration building is located half way down River Road. At this point the road splits three ways. The left hand fork leads to the campsites and cabins, the middle road leads to the Nassawango pavilion, the tire park, and the fishing pier. The right hand fork leads to the boat launch and the Mataponi pavilion. Gates are located so that any of these sections can be closed off as needed. However, pathways connect the various sections such that these sections can be accessed by foot even when some of these sections are closed to vehicular traffic. (See **Map 6B: Existing Conditions-Milburn Landing**). Milburn Landing is open for camping from late April to mid- December.

Ranger Station/Camper Registration

An unmanned Ranger Station/Camper Registration building is located off of River Road where it splits three ways. Campers self register by picking up an envelope at this building. Campers are required to fill out their registration forms with appropriate site information and drop it in a box located at this building. Some campers register online and therefore do not need to register at the building since they have their sites reserved prior to their arrival at the camp grounds.

Camp Loops

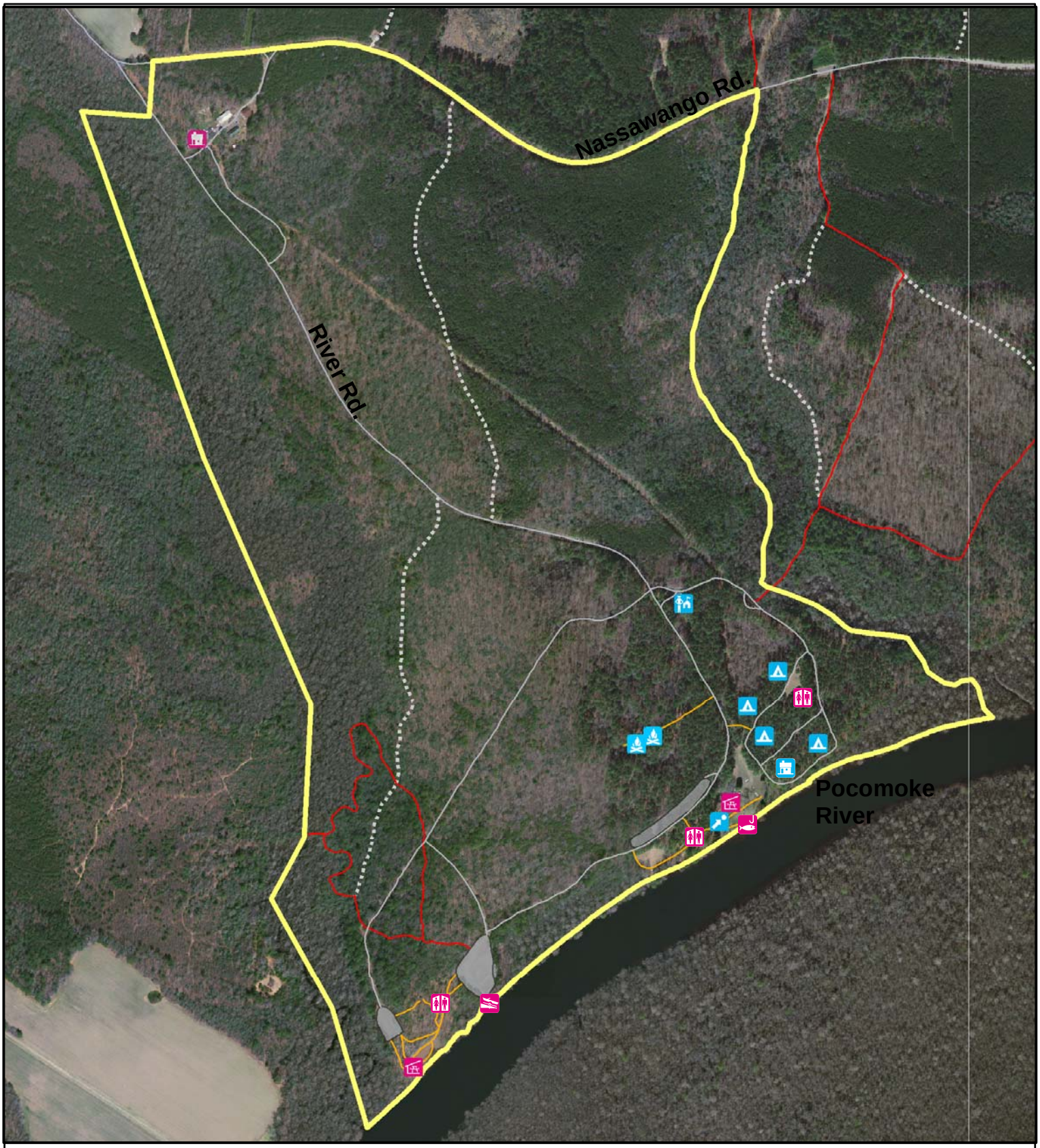
A total of 32 campsites are located in one loop that is divided by a road. Each campsite can accommodate 6 campers and is equipped with a camp pad, fire ring, and picnic table. For campers who prefer to camp on natural surface, sites one through eleven are available without stone dust. There is one centrally located bathhouse that serves all 32 campsites. Also available are two youth campsites that are located north of the 32 regular campsites. Each of the youth camp site is equipped with a fire ring and several picnic tables for youth group camping.

Cabins

Of the Parks 7 waterfront campsites, four are occupied by mini-cabins. These cabins can accommodate four people with one double bed and one bunk bed. The cabins are equipped with electricity, ceiling fans, and heat, and have both a picnic table and fire ring for outdoor cooking. All cooking is required to take place outside of the cabins. These cabins have large porches with rocking benches and offer scenic views of the Pocomoke River. None of these cabins has air conditioning units at the present time.

Comfort Stations

There are a total of three comfort stations located within Milburn Landing. One of these serves the 32 campsites and the youth campsites and is currently being replaced with a new building that will meet ADA requirements. The second comfort station is located between the Nassawango pavilion and the boat launch while the third is located in close proximity to the fishing pier, tire park, and Mataponi Pavilion and is ADA accessible.



Pocomoke River State Park Land Unit Plan

Map 6B: Existing Conditions Milburn Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from the data available at the time of analysis and may not match current conditions.

0 500 1,000 2,000 Feet

Legend

- State Park
- Parking Lots
- Boat Launch
- Bathroom
- Pavilions
- Fishing pier
- Staff Residence
- Cabins
- Campsites
- Gatehouse
- Playgrounds
- Youth Group Campsites
- Roads
- Old Logging Roads
- Trails
- Paths

N

Pavilions

The Mataponi pavilion can hold 50 people while the Nassawango pavilion can hold 75 people. Pavilions are available between 8 AM until sunset. The Mataponi pavilion is available to rent for $50 a day and the Nassawango pavilion is available to rent for $75 a day. The Nassawango pavilion parking lot can accommodate 70 cars and the Mataponi 35. Both these pavilions have bathrooms located in close proximity. The comparatively remote location of the Mataponi pavilion is desirable to visitors seeking privacy.

Picnic Tables

Each campsite has one picnic table. Additionally, there are picnic tables located at the pavilions, the youth camping area, and some located along the Pocomoke River in between the tire park and the Boat Launch.

Playground Areas

There are several play areas located at Milburn Landing. A well designed tire park was created in 2001 utilizing old tires and tire scraps and is located near the Nassawango Pavilion along with a small jungle gym. Another jungle gym is located within the camping area. A ball field is located near the Nassawango Pavilion and is used for kickball, soccer, tee ball, and baseball. Another small playground area is located adjacent to the Mataponi pavilion and includes a swing set and volleyball court.

Trails

The Bald Cypress Nature Trail is a one mile interpretive trail located in the southwestern corner of Milburn Landing. Hikers utilize marked posts which corresponding to a trail guide to explore pine, hardwood, and bald cypress swamp forest types. One of the old forest logging road runs north south through Milburn Landing and crosses the Bald Cypress Nature Trail and the main camp road. Several paths leading from this trail connect to various areas of the Park. These paths have both natural and semi-impervious gravel surfaces and are ADA accessible.

Fishing Pier

A Fishing Pier is located next to the Mataponi pavilion and tire park and is equipped with life preservers. A swinging gate is located at the end of the pier. A handicapped accessible ramp is also located adjacent to the main pier and was constructed in 2004. There are two boat tie ups at the pier.

Boat Launch

A boat launch is located in the south western side of the Park and has a concrete ramp that extends into the Pocomoke River. This launch has a paved parking area without clearly marked parking spaces for trailers and cars. Although this parking area is large and can accommodate up to 75 cars, it would be very beneficial to the visitors to have it marked appropriately for trailers and cars. In addition, appropriate landscaping would make the lot aesthetically appealing. Therefore, this plan is considering landscaping and

clearly making car/trailer parking spaces.

Canoe Kayak Launch

A soft launch for canoes and kayaks was constructed in 2004 and is located across from the main cabins overlooking the Pocomoke River. This launch area has a geoweb base and is filled with gravel. A walkway leads to this launch to assist transport of canoes and kayaks in and out of the Pocomoke River.

Trails on Surrounding State Lands and Waters

Land Trails

Several trails are located on DNR owned lands adjacent to Shad and Milburn Landing Areas. Trails located within nearby Pocomoke State Forest offer opportunities for visitors to hike, bike, or ride Outdoor Recreation Vehicles or ORV's (See **Map 7: State Lands Trails Map**).

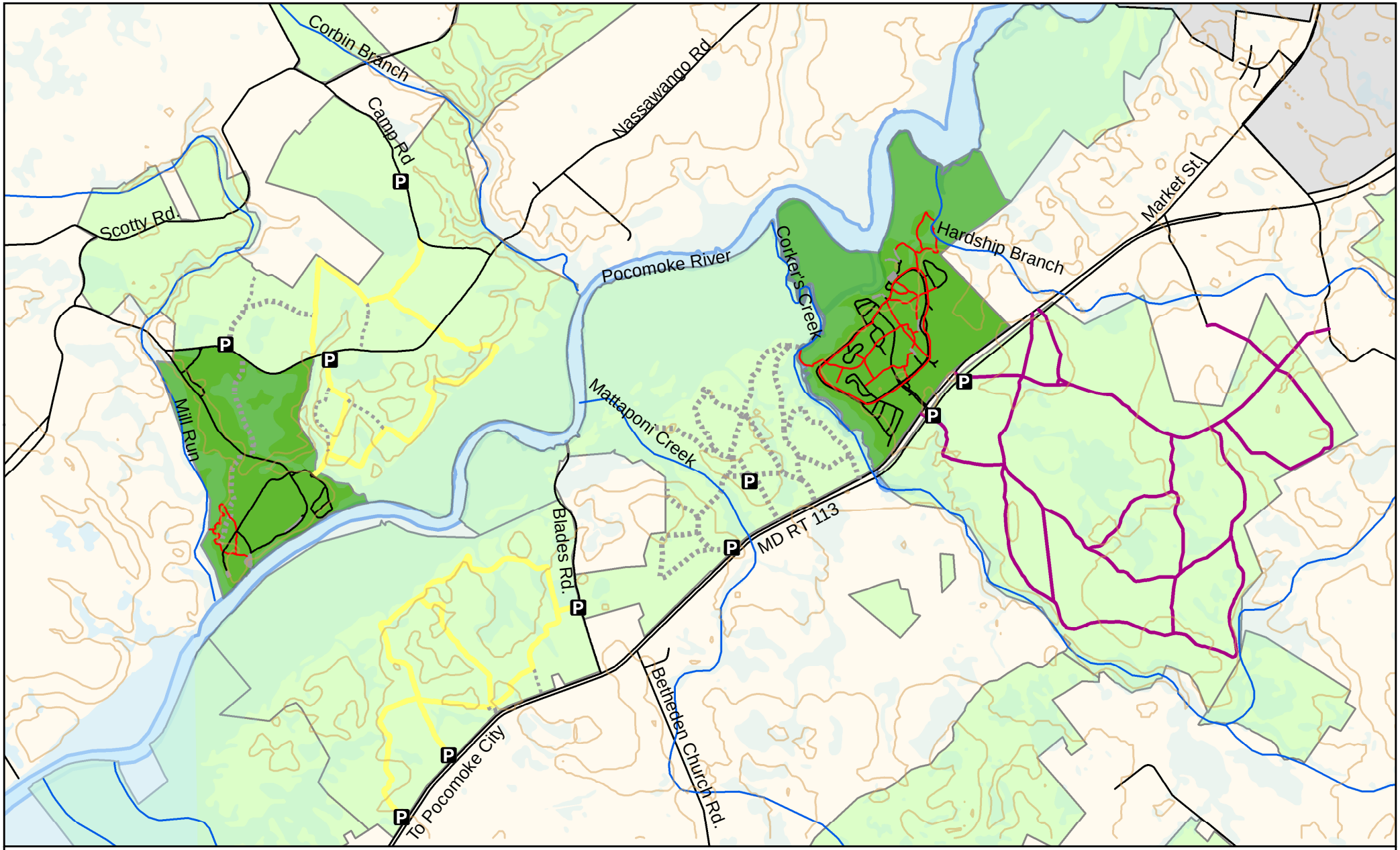
The state forest is divided into several tracts. Many of the tract names originated from past owners who deeded the lands over to the state. The Tarr tract, located south of Milburn Landing across the Pocomoke River, offers 4.5 miles of trails for bicyclers. The Hudson tract, located directly west of Shad Landing, offers 6.0 miles of trails to explore. These trails are comprised of unmarked old forest logging roads and are available to both hikers and bikers. The Chandler tract, located southeast of Shad Landing across from MD Route 113, offers 11.0 miles of trails available for ORV's. The Milburn Landing Tract, located east of Milburn Landing, offers additional trails for hikers and bikers through the Milburn Landing Trail and additional old forest logging roads. There are 3.5 miles of marked trails with an additional 2.5 miles of old forest logging roads creating a 6 mile trail network. A portion of the Milburn Landing trail south of Nassawango Road is located within Wildlands. Bicycles are not allowed in this Wildlands section of the trail.

The Pocomoke Wildlife Management Area contains trails that are maintained, although they are not actively marked. These trails are suitable for hiking, nature photography, birding, and hunting. Because these trails are not actively marked, they do not appear on the State Lands Trail Map.

Water Trails

In addition to several land trails, the Pocomoke River and its tributaries provide a total of 17 miles of water trails for canoeing and kayaking. The three official water trails are the Corkers Creek Blackwater Canoe trail (2 miles), the Shad Landing to Milburn Landing trail (4.5 miles), and the Shad Landing to Porter's Crossing Trail (10.5 miles). Nassawango Creek and several other tributaries of the Pocomoke River can also be explored from these water trails.

Corker's Creek-Blackwater Canoe Trail is a self guided paddling trip following the edge of the cypress swamp. This 2-mile loop is easy to complete in a few hours and offers ample opportunity for wildlife observation.



Pocomoke River State Park Land Unit Plan

Map 7: State Lands Trail Map

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

Legend

- DNR Lands Boundary
- State Park Boundary
- Wetlands
- Snow Hill
- Parking Lots
- Parking Areas
- Roads
- Rivers and Streams
- Contour Lines
- Trails within State Parks
- ORV Trails within the State Forest
- Hiker Biker Trails within State Forest
- Old Logging Roads

N

0 0.5 1 2 Miles

The Milburn Landing and Shad Landing water trail is 4.5 miles long and is a haven for bird watchers. Many of the birds listed in *Appendix 4* (such as Bald Eagles, Cormorants, Mallards, and Kingfishers etc.) can be seen along this trail. The 4.5 mile trip can generally be completed within four hours, although completion time is dependant on the user as well as tide and wind conditions.

Shad Landing to Porter's Crossing is the longest water trail with boaters passing old pilings and wharves as well as Nassawango Creek and the town of Snow Hill. About 5.5 miles north of Snow Hill, the bridge at Porter's Crossing is the final destination of this trail. Exploration of all of the tributaries and stops along the Shad Landing to Porter's Crossing trail is expected to take an entire day, although completion times of trails vary on the user as well as tide and wind conditions

Note: Information on recreational activities provided outside of State owned lands is provided on page 2.

Utilities

Shad Landing

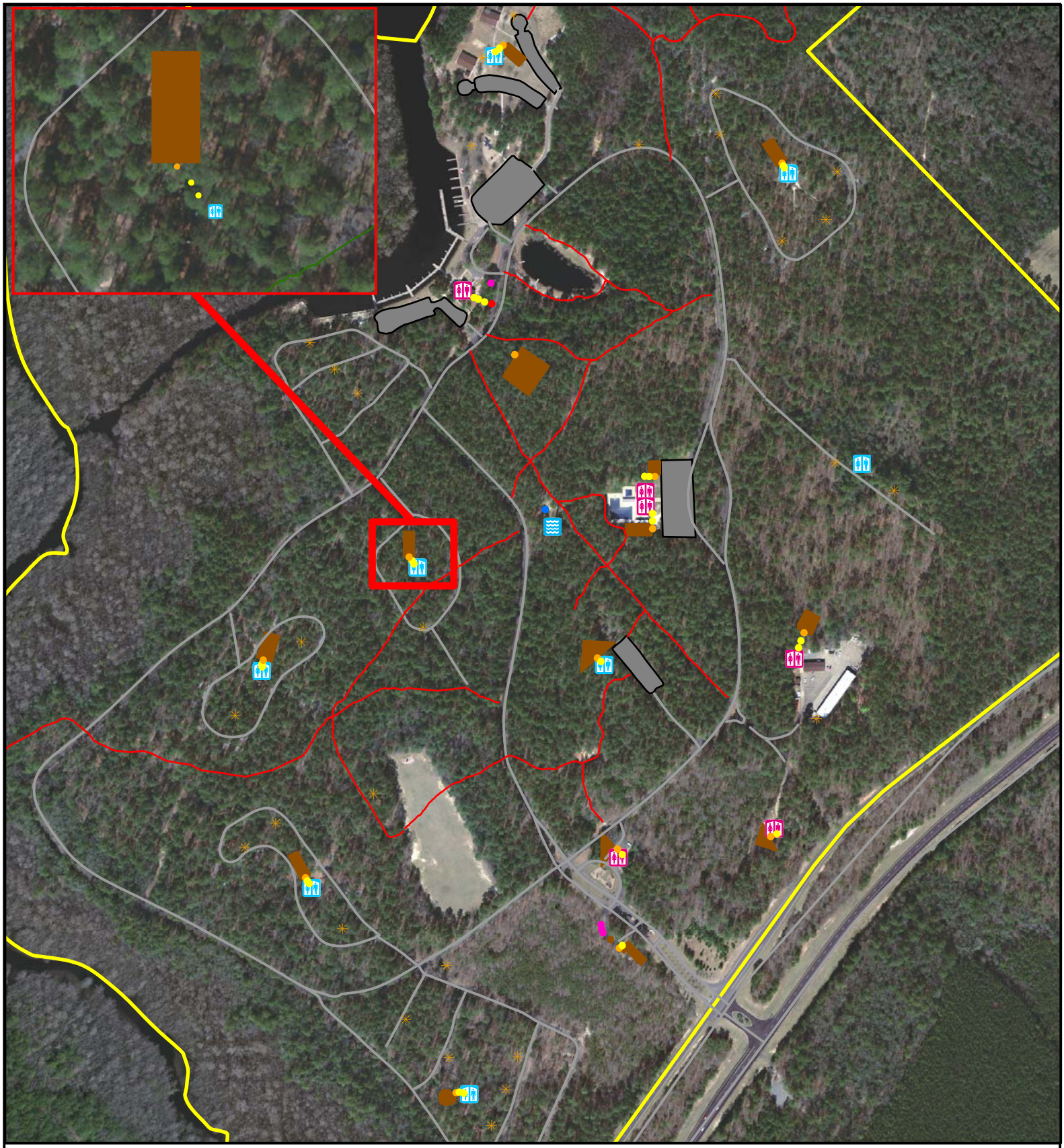
Water Utilities

Water is pumped from aquifers within the Park. There are two wells located at the Park that draw water from the aquifers and send it to a water tower (located adjacent to the wells) from where it gets distributed throughout the Park. During peak season water usage at Shad Landing is approximately 500,000 gallons a month. In July of 1999, Shad Landing used 513,000 gallons of water. This amounts to 16,548 gallons per day and 82.8 gallons per campsite per day.

The wells and the water tower are located in a fenced off area. In recent years the wells have accumulated sediment build up indicating the need for locating new wells in the near future. In addition to running water available in all buildings, there are water hydrants known as freeze-free hydrants made available throughout the camp loops that provide water throughout the year since these do not freeze. There are 27 freeze-free hydrants at Shad Landing. The water from the hydrants is potable and it is treated. (See **Map 8A: Utilities-Shad Landing**).

Septic and Waste Utilities

Shad Landing currently utilizes septic systems to dispose of human waste. Wastewater is dispersed through drainfields located near bathroom facilities within the Park. There are currently seven comfort stations and five buildings with interior bathrooms. Each of these has two septic tanks, a distribution tank, and a drainage field. The first tank contains solids while the second tank contains liquids. The septic tank containing solids is periodically pumped out. Ideally, septic tanks would be pumped once a year.



Pocomoke River State Park Land Unit Plan

Map 8A: Utilities Shad Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning staff from the data available at the time of analysis and may not match current conditions.

Legend

- Park Boundary
- Septic Fields
- Parking Lots
- Buildings with Bathrooms
- Comfort Stations
- Water Tower
- Septic Tanks
- Distribution Boxes
- Lift Station
- Freeze Free Hydrants
- Water Wells
- Dumpsters
- Dump Stations
- Roads
- Trails

0 250 500 1,000 Feet

N

However, only those septic tanks most frequently used are pumped on an annual basis and all others are pumped biannually.

The wastewater from the second septic tank moves to the distribution box where it is slowly dispersed into the nearby drainage fields. In buildings with high use such as the Marina/Camp Store a more advanced septic field is located to handle the wastes. This involves three septic tanks tied to a lift station which pumps the wastewater/graywater to a septic field at a higher elevation. An advanced system is necessary at this location due to the high use of this bath house and its proximity to the Pocomoke River. Currently at Shad Landing, there are fourteen septic tanks for solids, fourteen distribution boxes, one lift station, and fourteen drainage fields.

In addition to the bath house septic fields, a dump station for RV waste is located at the entrance to the Park and has a distribution box and drainage field to the west of the dump station. Also, three dumpsters for trash collection are located adjacent to the dump station. A contractor picks up the waste from the dumpsters. These are preferred to individual trash cans placed throughout the Park that can cause maintenance problems due to the volume as well as problems with raccoons.

Milburn Landing

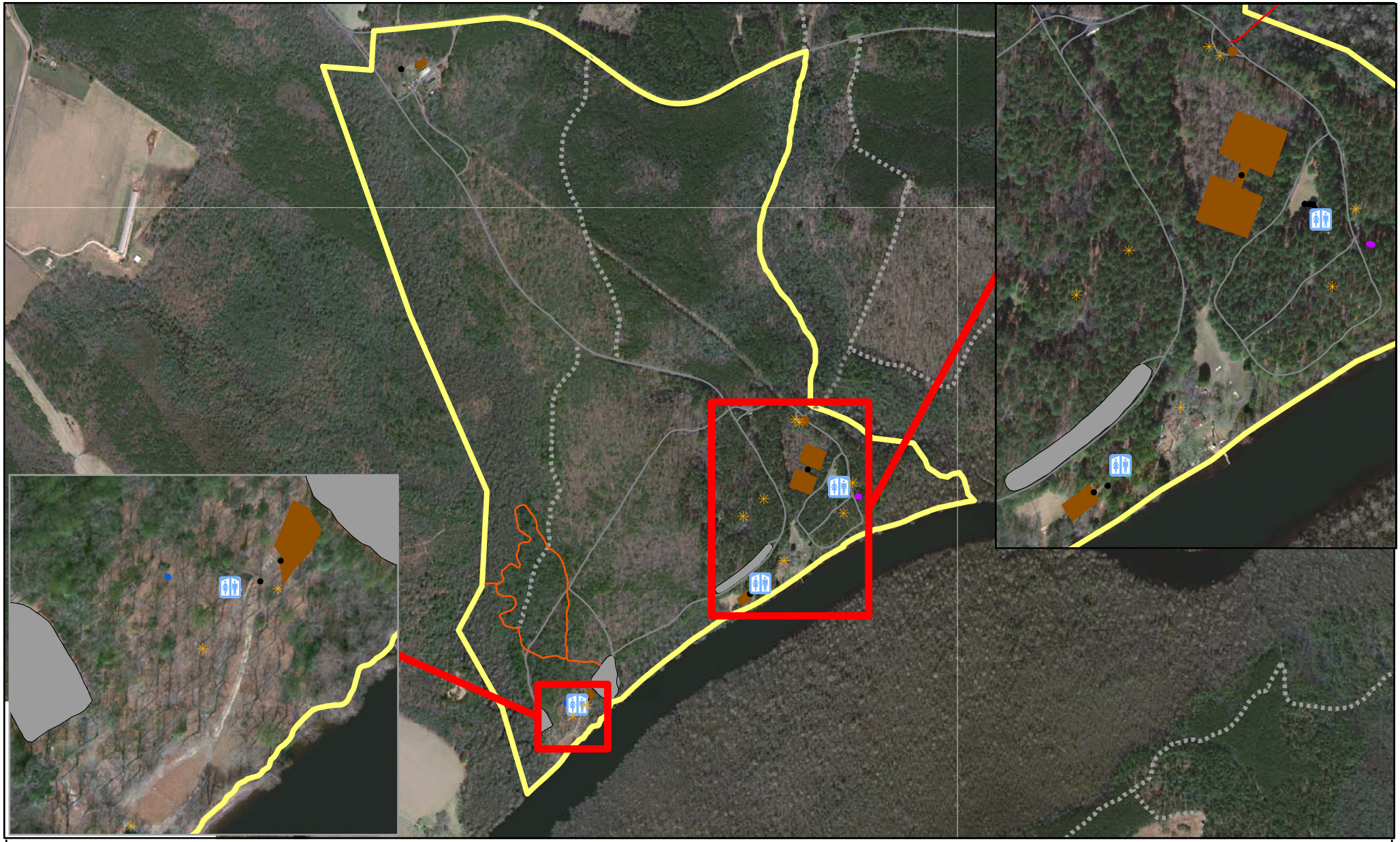
Water Utilities

Water is pumped from aquifers located within the Park. There are two wells located within Milburn Landing on opposite sides of the Park that draw water from the aquifers. One is in the camp loop area adjacent to the comfort station and the other is adjacent to the pumphouse between the boat launch and Nassawango pavilion. During peak season, Milburn Landing uses approximately 65,000 gallons of water per month. In July of 1999, 62,010 gallons of water was consumed. This amounts to 2,000 gallons per day and 55.5 gallons per campsite per day.

Since water is distributed throughout the Park by means of a pumphouse water becomes unavailable when there is a power outage at Milburn Landing since the pumphouse relies on electricity. There are 13 hydrants at Milburn Landing. The water is potable and is treated (See **Map 8B: Utilities-Milburn Landing**).

Septic and Waste Utilities

Milburn Landing currently utilizes septic fields to dispose of human waste. There are a total of four septic fields located at Milburn Landing. Three are located outside each of the three bathhouses. Additionally, there is a septic field for the Park residence located at the entrance to the Park. Ideally, pumping septic tanks should occur once a year. The most widely used septic tanks are pumped out once a year, while all other septic tanks are pumped out biannually. There is a cost of $220 each time a septic tank is pumped out.



Pocomoke River State Park Land Unit Plan

Map 8B: Utilities Milburn Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purpose. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

Legend

- Milburn Landing Boundary
- Parking Lots
- Septic Fields
- Comfort Stations
- Dump Stations
- Dumpsters
- Septic Tanks
- Water Wells
- Freeze Free Hydrants
- Roads
- Trails
- Old Logging Roads

N

0 500 1,000 2,000 Feet

There are currently three bathhouses, four solid septic tanks, four distribution boxes, one lift station, and four drainage fields located at Milburn Landing (See *Map 8B: Utilities Milburn Landing*).

There is a dump station for RV waste located across the road from the beginning of the Milburn Landing Trail. A dumpster is located across the road from Campsite 36 and is cleared periodically by a state contracted service provider.

Capital Improvements Projects (Past and On-going)
Provided below is information related to different types of projects undertaken at the Park since it was purchased/created by the State. The list provides a snapshot of the type of projects undertaken at the Park.

Shad Landing
The lands that comprise the Shad Landing Area were acquired/ transferred /designated for use in the early 1960's. The original development of the Shad Landing Area was comprised of a series of phased Capital development projects. The respective Park features and the year of completion are as follow:

1964
- Swimming Pool Complex (swimming pool, bathhouse, pump house, and parking area)
- Nature Center (future) Comfort Station (20'x 20') and parking area
- Paving of the associated access roads including the main entrance road from US Route 113

1965
- Main Entrance Contact Station (8'x 10')
- Park Headquarters Building (25'x 25')
- Maintenance Shop (34'x 40')
- Deer Run Camp Loop Shower Building (12'x 31')
- Robin's Nest Camp Loop Shower Building (12'x 31')

1966
- Maintenance Complex Shop/Office Building (40'x 40')
- Blue Heron Camp Shower Building (12'x 31')

1969
- Marina Services Building (50'x 50')
- Dock House (8'x 8')
- Paved parking areas for the marina services building and the boat ramp; paving of access roads from the main Park entrance and from the swimming complex

1972
- Maintenance Complex Storage Building (40'x 200')
- Day Use Area Shelter
- Acorn Trail Camp Area Shower Building (12'x 31')
- Nature Center (38'x 45')
- Construction of Corkers Creek Residence was completed

1973 Marina Boat Rental Building (8'x 36')

1976 Marina Picnic Area
A picnic area was constructed that included two 50' x 60' picnic pavilions (Algonguin and Manokin Shelters), a comfort station (20'x 20') and two 50 car

parking lots. The following year (1977), sheltered charcoal pits were constructed adjacent to each of the picnic pavilions.

1978 Marina Compressor Building (10'x 20')
1981 Maintenance Complex Paint/Oil Storage Building
1997 Installation of a floating Pier
1998 Pool Renovations at a cost of $700,000
1998 Camper Cabins
The installation of four 11' x 13' camper cabins was completed
1999 Boat ramp upgraded
2000 Camper Cabins
The installation of four additional 11' x 13' camper cabins was completed.
2000 Handicapped Renovations
A project was completed to provide ADA features through out the Park. Included in the renovations were ADA upgrades to the Camper Registration Building, the Park Office, the Marina Services Building, the Blue Heron and Robin's Nest Camp Loops, and the Park Amphitheater.
2002 Marina Area Upgrades (Power and Water)

Aside from the Capital projects listed above a federal channel currently referred to as Corker's Creek Canal was created by the United States Army Corp of Engineers (USACOE) in the early 60's. While the Plan provides brief information related to this under "Existing Conditions: Shoreline Change" further details are provided below:

<u>Corkers Creek Canal</u>
The River and Harbor Act of 1960 approved the construction of a channel 6 feet deep and 60 feet wide from the Pocomoke River to the marsh at Shad Landing including construction of a turning basin of the same depth but 100 feet wide and 575 feet long. The channel, now called Corker's Creek Canal, was dredged by the United States Army Corps of Engineers (USACOE) and is 1,575 feet or three tenths of a mile in length. Completed in 1966, Corker's Creek Canal provides watercraft access from the Pocomoke River to the marina at Shad Landing. Because the USACOE has jurisdiction over Corker's Creek Canal, the USACOE is responsible for maintaining and dredging the channel.

Construction of Corker's Creek Canal was part of a 5.4 mile USACOE channel construction project involving other sections of the Pocomoke River and the Pocomoke Sound. The overall project included a channel 9 feet deep and 100 to 130 feet wide between Shad Landing and the bridge at Snow Hill. As recently as 1990, the USACOE completed maintenance dredging of the channels in the Pocomoke River removing 32,700 cubic yards of material. Another survey will be conducted early next year by the USACOE to determine if shoaling has occurred in the federal channel and if there is a need for subsequent dredging.

Milburn Landing

1939
- Shelters at Areas A * (30'x 30') and B * (20'x 30')
- Ranger Residence* (28'x 30')

1962 Construction of the Campground Shower Building (24'x 26') was completed
1964 A 16' x 16' Storage Building was constructed
1966 Construction of the Area "A" Comfort Station (18'x 20') was completed
1980 Construction of the Camper Registration Building/Office Building was completed
1981 A Pump House was constructed at the Day Use Area
1982 Construction of the Area "B" Comfort Station (18'x 20') was completed
1988 Construction of the Maintenance Shop Building was completed
1990 Handicapped Renovations
A project was completed to provide ADA features at Areas "A" and "B". Handicapped parking spaces and accessible stone dust surfaced pathways were provided in each area, the comfort stations were modified, and accessible features were incorporated into the existing piers at the Area A fishing pier and the Area B boat ramp.
1999 The installation of four 11' x 13' camper cabins was completed
2003 Replaced pier dock and installed a floating pier

* These features pre-dated the State Park

Current and Past Programs and Activities

There are numerous natural resource based recreational opportunities at Pocomoke River State Park. The Pocomoke Paddler is a newsletter which presents news and events occurring at Pocomoke River State Forest and the Park. This newsletter is available via subscription by sending an e-mail request to: pocomokepddler@dnr.state.md.us. This newsletter is e-mailed four times a year. A list of guided events occurring at Pocomoke State River Park can also be found at:

http://www.dnr.state.md.us/publiclands/eastern/ppspecialevents.html

Pocomoke River State Park offers abundant opportunities for camping, boating, fishing, picnicking, swimming, hiking, biking, canoeing, kayaking, birdwatching, wildlife observation, and environmental education. Current programs as well as some of the discontinued programs are discussed below.

Current Programs and Activities

Camping

Pocomoke River State Park offers numerous opportunities for camping with mini cabins, camp sites with pads as well as natural surface sites and youth camp sites. Shad Landing has eight mini-cabins and Milburn Landing has four. Cabins come equipped with one double bed and one set of bunk beds that sleep a total of four visitors. Each campsite has a picnic table and a campfire ring. Three of the eight cabins at Shad Landing have air conditioning units. The ADA accessible cabins have two bunk beds. Cabins at Shad Landing are available year round, while cabins at Milburn Landing are only available from April 28th to December 11th. Cabins without air conditioning cost $50 per night while those with air conditioning cost $55 per night.

Youth group camping sites are available at both Shad Landing and Milburn Landing. Any group with a Maryland Youth Group Pass can camp for free. However, advanced reservations are required and there is a $15 reservation fee.

A total of 232 traditional campsites are currently available at Pocomoke River State Park with 191 of these at Shad Landing and 32 at Milburn Landing. All campsites are equipped with a picnic table and fire ring and most of these have access to bathhouses that provide hot water showers, flush toilets, and a laundry tub. There is a limit of six people per campsite and all camping units must be able to fit on the camping pads. There is a sewage dump station available for sewage. Electric campsites cost $30 per night while non-electric campsites cost $25 per night. At Shad Landing Robins Nest and Waters Edge campsites are open throughout the year while the remaining campsites are open from March 31st through September 25th. Milburn Landing campsites are open from April 28th through December 11th. In order to make camping reservations for cabins, youth group camping, or traditional campsites visit: http://reservations.dnr.state.md.us/

Boating, Canoeing/Kayaking

Shad Landing currently has 39 boats available for rentals. These include 10 regular (ABS) canoes, 9 aluminum canoes, 5 dories or flat-bottomed boats, 3 engine boats, 6 tandem kayaks, and 6 single kayaks. Both Shad Landing and Milburn Landing have boat launch ramps. The Shad Landing Marina has 23 boat slips with water and electrical hookups, launching ramp, lighted dock area and a fuel and transient pier. Milburn Landing has a boat launch area located in the south west corner of the Park and a fishing pier located adjacent to the Nassawango pavilion with just two boat tie ups meant to be used by boaters for a temporary period of time. These slips are primarily used for tying up boats that have an educational purpose. Larger recreational boats can use the 23 boat slips which are available at Shad Landing. The following fees apply for slips at Shad Landing:

Table 15: Marina Rental Prices: Shad Landing

	Hourly	Daily	Monthly	5 months	Yearly
Boat Slip* 30 amp service	-	$25	$100	$400	$1000
Boat Slip* 50 amp service	-	$30	$125	$500	$1200
Boat Slip* 100 amp service	-	$35	$150	$600	$1400
Boat Slip* for reg. campers	-	$10	-	-	-
Electric service for bass boating area	-	$5	-	-	-
Canoe/ Kayak**	$10	$35	-	-	-
Motorboats	$20	$80	-		

*There is a $100 additional fee for boat slips during months which require the use of a water agitator or de-icer
** There is a $50 fee to rent canoes/kayaks for the weekend. Guided Tours are held on Sundays during the summer and cost $15 for a single canoe/kayak and $20 for a tandem canoe/kayak.

Apart from boat rentals canoeing and kayaking is very popular at the state park. There are three water trails surrounding the Park which have been previously described under the "Trails on Surrounding State Lands and Waters" section of this Plan. Park staff currently offer two hour guided paddling trips every Sunday morning during the summer season at Shad Landing. Evening canoe trips are held once a month during this same season. Guided canoe trips cost $20 for a canoe or a tandem kayak and $15 for a single kayak.

Fishing
The Pocomoke River has historically supported a large number of fish. There are multiple opportunities to fish at Pocomoke River State Park. Shad Landing has a fishing pond and Milburn Landing has a fishing pier. The Pocomoke River as well as nearby creeks and tributaries also provide opportunities for fishing. A Chesapeake Bay Sports Fishing License is required in order to fish from the Pocomoke River and nearby creeks. To fish from the pond at Shad Landing, a freshwater fishing license is required. The pond is part of Maryland's "Put and Take" trout program. A trout stamp is required in order to possess trout. The fishing pond at Shad Landing is annually stocked with several fish species. Two species of fish commonly fished for sport are largemouth bass and chain pickerel. A full list of fish species known to inhabit the Pocomoke River and its surrounding tributaries are listed in *Appendix 7*.

Picnicking
There are four large pavilions, one small pavilion, and several picnic tables found throughout the Shad and Milburn Landing State Parks. Discussion on these pavilions and picnic areas are available under the "Existing Facilities" section of this Plan.

Swimming
Shad Landing State Park has a swimming pool that is open to the public between Memorial Day and Labor Day weekends. The following service charges apply at the pool: Day Users $5/person, Campers $3/person, Pre-registered youth groups (Monday through Friday only) $2/Person, 10 entry punch pass $30 and a 25 entry punch pass at $60.

Hiking, Biking and ORV's
Information related to the various trails that provide opportunities for hiking, biking, and Off Road Vehicles (ORVs) is provided under the "Existing Facilities" section of this Plan.

Environmental Education
Park Naturalists host a wide variety of environmental education programs. These include regular programs offered at the Park, school and civic group programs, and Scales and Tales programs.

<u>Public Environmental Education Programs</u>
Regular programs offered at the Park are listed on a yearly events calendar available on the web as well as in other mailings. These programs require a reservation in order to participate. Some of the education programs include eagle watches, night hikes, constellation explorations, and guided canoeing trips. The most popular of these programs are the Eagle Watch, Bird of Prey photo shoots, and canoeing trips. Attendance at these programs has been steadily increasing each year and new programs are added to attract new participants. A complete list of 2006 public environmental education programs is provided below:

January 14: Eagle Watch
January 28: Birds of Prey Photo Shoot
February 18: Eagle Watch
February 25: Constellation Exploration
March 12: Eggsellent Scavenger Hunt
May 6: Salamander Meander Search
May 27: Live Birds of Prey
June 10: Evening Canoe Paddle
June: Sunday Morning Guided Canoe Trips
July 1: Adopt-a-raptor and Show
July: Sunday Morning Guided Canoe Trips
July 8: Evening Canoe Paddle
August: Sunday Morning Guided Canoe Trips
August 5:Evening Canoe Paddle
September 2: Ice Cream Social/Raptor Show
October 14:Explore the Night Sky
October 21: Night Hike
November 11: Birds of Prey Photo Shoot
November 18: Turkey Trot

Weekend Programs

Weekend programs are offered by Park Naturalists during the summer. Typically, nine programs are held throughout the weekend starting Friday night through Sunday afternoon. Programs are advertised on flyers throughout the Park as well as by roving naturalists who invite campers to attend. There is also a Saturday evening campfire held at the amphitheater.

School and Civic Group Programs

Park Naturalists also provide environmental education programs for schools and civic groups upon request. Program topics include insects, birds, habitats, orienteering, scavenger hunts, hikes, fishing, and water ecology activities. Groups of up to 100 can be accommodated. A rotating schedule is created for larger groups as needed.

Shad Landing Experience

The Shad Landing Experience was started in 1994 and included children from Snow Hill Middle School. In 2000, the program was expanded to include all children from middle schools throughout Worcester County. Sixth graders from County schools participate in this program which introduces students to nature through a series of hands on learning activities. Approximately 500 students participate in this program from mid-May to mid-June each year. Students visit the Park with their classmates and teachers for a total of four to five days. While individual schools have some discretion with the curriculum, there are standard activities in which student participates. Examples of activities held during the Shad Landing experience include canoeing, hiking, fishing, pond studies, orienteering, and nature writing. The Park offers equipment, facilities, and staff at a reduced cost. Students pay $10 for access to canoes/kayaks, picnic shelters, and the pool. Several Nature Center programs including Scales and Tales are offered at a reduced rate of $50 paid for by the Worcester County Public Schools.


Saw-whet Owl

Scales and Tales Programs

The Scales and Tales program has been offered by the Park since the early 90's and is one of the strongest environmental outreach programs offered by the Department. The Park is home to 14 birds such as screech owls, red tailed hawks, great horned owls, and turkey vultures which were acquired by the Park when they were found injured in the wild. Some of the Scales and Tales Programs include: Wildlife on Display, Feathers in Focus Photo Shoots, and Forest Friends Private Birthday Parties.

Past Programs

Past Programs are not offered for several reasons. Programs may have been discontinued due to lack of equipment, park staff, or community interest. Below are a few examples of programs which used to be offered at the Park.

Fright Night

The community and park staff worked jointly to host Fright Night at Shad Landing. Community volunteers decorated, sold food, provided games and music, collected entrance tickets and staffed the haunted hay ride. Park staff managed parking, selling souvenirs, and provided interpretive programs such as Scales and Tales. Approximately 2,000 visitors from surrounding communities attended the Fright Night event. This program is no longer offered at the Park due to staffing and parking issues. Fright Night was held at Shad Landing from 1988 to 2005 and typically on the Saturday night before Halloween. This event was cancelled in 2006.

Easter Egg Hunt

Similar to Fright Night, the Easter Egg Hunt was an annual collaboration between the Park and community volunteers. The program was held for 5 years in the late 1990's and had a visitation of approximately 300 people each year. During the Easter holiday, local children would hunt and decorate Easter eggs.

Guided Paddling Trips

Extended Guided paddling trips were once offered by the Park. These trips were discontinued due to a combination of staffing shortages and a below average community response. Trips currently offered last only two hours and are offered as programs during the summer on Sundays. If the length of these trips is to be extended, additional staff will be needed. The Park has the necessary equipment for extended paddling trips with multiple canoes and kayaks and a canoe trailer. These day-long extended paddling trips could again be offered at the Park if there is sufficient demand from the public as well as adequate staff to lead the trips.

Nature Spouts

Nature Sprouts was an environmental education program offered to three to five year olds. The purpose of the program was to introduce young children and their parents to nature. This program ran for two years in 2004 and 2005. While attendance was excellent in the first year, attendance dropped in the second year, and the program was not offered in 2006. Nature Sprouts could be a successful program with additional advertisement and staff.

Outfitters and Guided Trips

In response to the recreational demand for canoeing and kayaking many outdoor outfitters have formed state-wide. There are several on the Eastern Shore as well as outfitters specifically dedicated to exploration of the Pocomoke River and its tributaries. Information on outfitters is currently found on the following website: http://www.dnr.state.md.us/outdooradventures/guideeast.html.

Issues and Concerns

Shad Landing

Swimming Pool

The Swimming Pool is currently the only public swimming pool on the Lower Eastern Shore. Operational costs of the swimming pool currently outweigh revenues generated. In addition, the Pool was closed for several weeks at the beginning of the summer 2006 season due to several small cracks which compromised the structural integrity of the Pool. In order to generate sufficient funds to operate the pool, admission prices have increased in recent years. This has met with resistance, especially from campers many of whom have abandoned the pool for nearby beaches to swim. One of the ways in which admission fees can either be contained or even reduced is to reduce maintenance costs. Attractive admission fees can increase visitation which in turn would increase revenues generated from the pool.

Increasing the attractiveness of the pool through the addition of a spray area and a full service pavilion located adjacent to the swimming pool parking lot equipped with an outdoor kitchen and bathrooms should help to increase visitation and subsequent revenues. This pavilion will be available to rent for family gatherings, birthday parties, and community events. The addition of a $20 campers pool pass could also help to alleviate campers concerns over increasing prices. While the previous $3 per person per day charge to enter the pool will remain, this $20 pass will provide a discount for campers who use the pool often enough to benefit from the pass. One pass will be made available per campsite.

Wastewater Treatment

Shad Landing currently has fourteen septic fields that handle wastes from the various bathhouses and restroom facilities. These septic fields are in various stages of failure. If the soil in the developed part of Shad Landing was not relatively sandy and drained well, it is likely that many of these septic fields would have already failed.

There were four options recommended in a study commissioned by the State from a private Engineering firm regarding the failing septic system and alternate disposal options. These are:

- Improve the existing septic fields on an individual basis
- Replace all the individual septic fields with a central septic field
- Connect the Park to the Town of Snow Hill's Waste Water Treatment Plant
- Install a package treatment plant at the Park to handle wastes

The first option (improve each septic system individually) could require the removal of numerous trees as well as increase the size of the current drain fields from 250 feet X 250 feet to 500 feet X 500 feet in order to comply with Worcester County Health Department regulations.

The second option, to construct one large central drain field to handle all of the Park's waste, would require a minimum of 14 acres to establish the drain field. This could

require clearing of a large number of trees and cause tremendous physical and visual disturbance to the landscape of the Park.

The third option, to install a package treatment plant at the Park, would involve not only initial costs of installation of the plant but also ongoing maintenance.

The fourth option is to hook up to the town of Snow Hill's new Waste Water Treatment Plant (WWTP), which is planned to replace the current plant located within the old Town limits to the recently annexed property that will house the Summerfield development. The new treatment plant will be approximately 2 miles from the Park. The new treatment plant capacity is expected to have a 4,800 equivalent dwelling unit (edu) capacity and the Park is in need of 30 edu's. The option to hook up to the Town's WWTP is the best of the four options in terms of impacts to the environment and the annual and on going operational costs associated with sewage disposal.

Parking Issues

Parking is not an issue except around the Marina/Boat Launch area. The number of cars parked in the marina parking lot often exceeds capacity. The boat launch area has a total of 40 parking spaces with 23 trailer spaces and 17 regular car parking spaces. Each trailer parking space can accommodate two cars in each space. Two regular parking spaces are ADA accessible spaces. In addition, the camp store has a total of 59 spaces, two of which are ADA accessible and three are reserved for authorized vehicles. The Algonguin and Manokin pavilion parking lots have 60 and 65 spaces respectively for a total of 115 spaces.

Due to the high volume of trailers and cars that park at the boat launch parking lot this lot is regularly full with both trailers and cars searching for places to park on busy weekends. In order to accommodate these visitors it is necessary to identify additional parking areas in close proximity to the boat launch area since it is infeasible to park trailers at the Marina Services Building trailer parking lot and to launch a boat at the same time.

Wells for Water

Water for the Park is currently provided by underground aquifers. Two wells at Shad Landing and two wells at Milburn Landing pump water out of aquifers. The Shad Landing wells are experiencing sediment build up due to their age (these were dug in the early 60's). The build up has reduced the life span of the wells which are expected to last only a few more years. Therefore, replacement wells will have to be dug in order to provide an uninterrupted source of water.

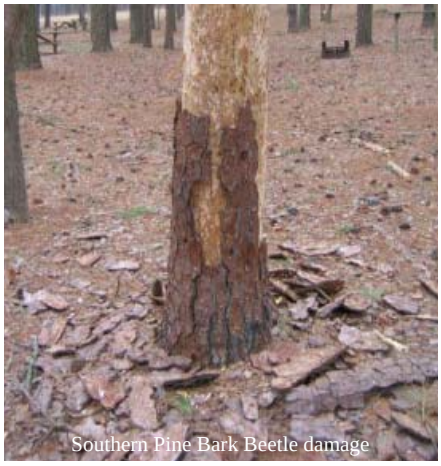
Electricity-Power Lines

Electricity to Shad and Milburn Landing Areas is currently provided by two different companies. Shad Landing's electricity is provided by Delmarva Power Inc. and Milburn Landing's electricity is provided by Choptank Electric. The primary difference between these two power companies is that Choptank Electric is responsible for maintenance of the power lines within Milburn Landing since they own the power lines. At Shad Landing, Delmarva Power Inc.'s ownership of the power lines stops at the entrance to

Shad Landing, with the Park owning and maintaining the power lines within the Park. These power lines are currently located above ground and the mown lanes underneath of these power lines form the basis for many of the existing trails. Park staff currently do not have a budget to hire private contractors to remove branches that encroach upon the power lines. Park staff is currently responsible for keeping the access pathways underneath the power lines mowed. Power outages due to foliage is increasing and the Park pays an average of $250 every time it hires a contractor to reset the breakers.

Invasive Species

Adult Southern Pine Bark Beetles cause damage to pine trees by boring into the cambium and inner bark of living trees and constructing tunnels that may girdle and kill the tree. Additionally, the beetle introduces a blue-stain fungus which accelerates tree death. Regular inspections are necessary in order to avoid large scale tree damage.


Southern Pine Bark Beetle damage

A Southern Pine Bark Beetle infestation took place in Shad Landing State Park during the summer of 1991. Three areas of the Park were infested, totaling 12 acres. In an effort to control the outbreak, the timber was harvested via a Timber Sale Contract in October 1991. This timber sale was with a private contractor. The harvested area naturally regenerated and was also spot planted with Red Oak, White Oak and Yellow Poplar. It was pre-commercially thinned in 1992.

Japanese stilt grass is a concern in both Shad Landing and Milburn Landing. It thrives and reproduces in as little as 5% of ambient light, and therefore spreads along corridors in moist forest, such as stream banks and trails. It is known to spread rapidly in the forested understory, and also to suppress both woody seedlings and perennial wildflowers. Studies indicate that a dense Japanese stilt grass carpet can provide protection from avian predators for seed-eating small mammals, allowing these herbivores greater access to nuts, and greater impact on tree regeneration.


Japanese stilt grass

K.L. Kyde © 2006

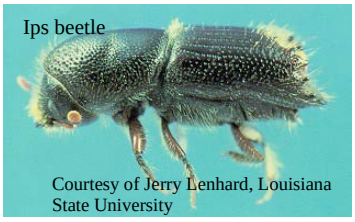
Japanese stilt grass can be controlled, either mechanically or chemically. As yet, there is no biological control agent. Carefully timed road edge mowing will reduce growth along roads. In late August or very early September, a close mowing will remove any grass stems that are about to flower and thereby eliminate its seed set for that year. A persistent soil seed bank, however, requires this timed mowing for several years to exhaust the seed bank and bring this invasive grass under control.

Finding and identifying invasive plants in natural areas early in an invasion is the key to controlling and/or eradicating them. Park employees should be on the lookout for common invasive species likely to occur on the lower Eastern Shore. Posted information or interpretive programs that teach Park visitors to recognize these plants and to seek their help in keeping track of the invasions can help the Park to control invasive species.

Milburn Landing

Invasive Species

During fall 2005, an Ips Beetle infestation occurred near the Youth Group campsites as well as campsites ten and eleven within Milburn Landing. Approximately fifty trees had to be removed to prevent the spread of the infestation. Once an infestation (either Ips or Southern Pine Bark Beetle) is identified proactive measures need to be taken to immediately eradicate the infestation to avoid wide spread loss of trees. The Ips beetle can have devastating consequences on forests by killing a large percentage of pine trees and this is especially important to monitor and control due to the large number of loblolly pine trees that occur within Milburn Landing as well as the State lands surrounding Milburn Landing.



See Shad Landing Invasive Species section regarding potential issues and concerns associated with Japanese stilt grass at Milburn Landing.

Pets

Pets are allowed on a leash at Milburn Landing. Pets are not allowed at Shad Landing. Owners are required to scoop pet waste and are expected not to leave pets unattended. Additional rules are needed to this effect. This will prevent the abandonment of pets at campsites and facilitate a more pleasant camping atmosphere. Currently, owners with disruptive pets are asked to leave Milburn Landing at the discretion of the Park manager.

Pocomoke River State Park Forest Management Plan

Approximately 238 acres of the Shad Landing Area consists of forested uplands. With the exception of the 12 acres harvested in 1991, due to insect infestation, the trees in this area are over mature and have a declining growth rate. They are very susceptible to insect attacks and continue to die periodically due to various stress factors that are amplified due to the poor vigor of the trees. Milburn Landing forest, which consists of 288 acres of upland, faces similar issues.

In order to take a pro active approach to managing trees both at Shad and Milburn Landing Areas it is necessary to develop a Forest Management Plan that would address issues associated with pest infestations, harvesting of mature trees, and replantings in appropriate areas. It should be noted that the Pocomoke State Forest Sustainable Forest Management Plan will include forest management guidelines for Pocomoke River State Park.

Mission Statement, Goals, and Strategies

Mission Statement

To maintain community oriented as well as regional recreational opportunities at Pocomoke River State Park by making improvements to current facilities and adding new facilities with an aim towards environmental education and natural resource protection that will result in the creation of attractions at the Park to serve both current and future visitors.

Goals

1) Enhance visitor experience by maintaining and improving current facilities at Pocomoke River State Park
2) Ensure repeat visitation and attract new visitors by adding new facilities and additions
3) Improve and enhance natural resource education to visitors of all ages
4) Protect natural resources
5) Make environmentally friendly improvements
6) Continue current programs, and create new programs and attractions that facilitate connections between the Park and adjacent communities
7) Market the Park to both in-State and out-of-State visitors.

Strategies

Goal #1: Enhance visitor experience by maintaining and improving current facilities at Pocomoke River State Park

Shad Landing Area

- Replace the existing Marina Services/Camp Store Building with a new building that addresses visitor circulation and staff assignments in order for the staff to coordinate various functions such as food concession area, camper registration, displays and exhibits, merchandise sales, guided tours/rental information, and displays/marketing, restrooms, etc. in one building.
- Make improvements to the boat launch parking area to increase car/trailer parking spaces in order to address current and future needs.
- Ensure that the existing rental canoes and kayaks are in good working order and that funds are appropriated on a regular basis to maintain these and to add new ones to meet current and future demands.
- Ensure that picnic tables throughout the Park are regularly maintained and that funds are set aside for replacement tables on a regular basis.
- Upgrade campsites as needed including the addition of water hydrants, electricity upgrades, hook-ups to sewage dump station, and pit toilets.
- Make improvements to segments of the Trail of Change that needs boardwalks, culverts etc. to ensure a useable trail surface. Further, make improvements to the overall 2.0 mile trail system at the Park such that unnecessary segments are removed and new ones added to create a well designed trail system.
- Renovate the Administration Building to include adequate number of office and storage areas, a meeting room, kitchenette and restrooms needed for the staff to function efficiently in their service to the public.

- Renovate and/or replace current bath houses to make these more modern from both an aesthetic and functional standpoint. Large amounts of water and energy are wasted using non-water efficient faucets and showerheads. Current Federal guidelines mandate that all lavatory and kitchen faucets manufactured after January 1, 1994, must use no more than 2.2 gallons per minute (gpm) and showerheads must use no more than 2.5 gpm. Since most of the bath houses were built prior to 1994, modernizing bath houses will save energy bills and will also accomplish water efficiency.
- Modernize or replace the current aviary building so that it has screening that meets with requirements related to West Nile virus, has a work area that is easy to maintain and has a misting system to cool the birds.

Milburn Landing Area

- Add additional boat tie ups at the fishing pier by increasing the tie ups from 2 to 5.
- Improve the boat launch parking lot by marking the car and trailer spaces to ensure a smooth flow of traffic and add landscape islands to achieve aesthetic improvements.

Goal #2: Ensure repeat visitation and attract new visitors by adding new facilities and additions at Pocomoke River State Park

Shad Landing Area

- Build a fourth pavilion at Shad Landing to address the needs of the NC, swimming pool complex, and the youth campers.
- Enhance maintenance and management at the Swimming Pool Complex with the addition of a slide in lieu of diving board at the main pool and a spray area to replace the wading pool.
- Build a mini aviary to temporarily display birds in a public setting for various NC programs.
- Build four full service cabins at Camp Loop C since there are no such facilities available at this Park and these cabins are very popular at other Parks. Adding these cabins will attract visitors who utilize these type facilities.
- Add an additional youth group camp site to meet current and future demand for these types of facilities.
- Replace an area of Camp Loop E with pull through camp sites to accommodate large recreational vehicles since there is growing demand for such facilities.
- Create a contiguous trail system by connecting the Shad Landing trail system to the Pocomoke River State Forest trail system by means of a boardwalk and a bridge connection over Corkers Creek. Further, look to create trail connections to the Town of Snow Hill either via State lands or via Rt. 113.
- Add a set of unisex bathrooms to the Nature Center building since the adjacent bath house currently used by staff and visitors is not heated and therefore closed during winter when the Nature Center is still open to the public.

Milburn Landing Area

- Add 4 additional mini cabins to meet the demand for these type of cabins

- Add a restroom to the maintenance shop area so that Park staff does not have to travel to the main bath house to use the restrooms. Also, this addition will help meet both federal and State worker Health and Safety requirements.

Goal #3: Improve and enhance natural resource education for visitors of all ages

- Construct a small aviary adjacent to the NC in order to assist with various programs at the NC especially the ongoing Scales and Tales Program. This will allow visitors to view the birds between programs and provide the birds a larger area that creates less stress on the birds than being housed in smaller cages inside the NC which is currently done.
- Ensure that uniform and consistent signs are provided on sturdy waterproof material with appropriate environmental information and will be located throughout the park, especially along trails. Specifically improve the orientation and clarity of signage for self-guided recreation.
- Increase promotion of existing naturalist programs and future nature center exhibits through the DNR website, and by posting flyers at school, libraries, etc.
- In cooperation with the Wildlife and Heritage Service, develop facilities and programs to promote wildlife appreciation activities such as bird watching blinds, nest boxes, bird trails, educational programs etc.
- Enhance the Youth Group Camping program by integrating it with educational and recreational programs.
- Cooperate with other DNR educational programs and look for opportunities to expand existing state outreach programs to the Pocomoke site. Some of these programs are the Project Wild, Outdoor Discovery Program and Hooked on Fishing, Not on Drugs.
- Continue to advertise events through the Pocomoke Paddler but consider developing a website solely for the Pocomoke Paddler which lists upcoming events, how to subscribe, and provides a link back to the current DNR website.

Goal #4: Protect the natural resources

- Conserve ecosystem features, functions and processes to the extent possible.
- Protect sensitive species and their habitats such as State Listed threatened and endangered species Lowland loosestrife (*Lysimachia hybrida)* and Sacciolepis (*Sacciolepsis striata).*
- Prepare a Forest Management Plan to address issues associated with pest infestations and replantings in appropriate areas.
- Protect the habitat of Forest Interior Dwelling Species (FIDS).
- Enforce existing management plans to control invasive species.
- Enhance buffers to protect endangered species and their habitat by targeting appropriate lands for acquisition.
- Ensure that proposed improvements at the Park have minimal impacts on wetlands and critical areas.
- Demonstrate best management practices (BMP) where possible:
  * Incorporate integrated pest management into invasive species control; and
  * Incorporate shoreline stabilization where necessary.

- Plantings and landscaping should consist of only native vegetation characteristic of the local site and the topographic zone.
- Upgrade septic systems including connecting Shad Landing to the Town of Snow Hill's Waste Water Treatment Plant.

Goal #5: Make environmentally friendly improvements

- Include design features that comply with standards such as LEED (Leadership in Energy and Environmental Design) Green Building Rating System, which incorporate strategies such as solar power, wind power, composting toilets, low-flow shower heads and skylights.
- Replace existing pit toilets at the Youth Group campsites with composting toilets such as Clivus Multrum.
- Plant trees for additional shading in appropriate areas and orient new buildings to benefit from solar energy.
- Consider solar panels for generating electricity.
- Ensure that new developments have appropriate stormwater management features, including retrofitting existing facilities such as parking lots etc.

Goal #6: Continue current programs and create new programs and attractions that facilitate connections between the Park and adjacent communities

- Create trail connections to the Town of Snow Hill both via Maryland Rt. 113 and along DNR-owned and managed Park lands and HCF lands that are adjacent to Town boundaries and the proposed Summerfield development.
- Arrange alternative transit for Fright Night visitors. Fright Night was held during Halloween at Shad Landing for 18 years but was cancelled in 2006 due to parking issues. This program benefited the adjacent communities and if revived, Fright Night can use alternative transportation methods such as bringing visitors by bus and boat. This would relieve pressures on on-site parking.
- Continue school programs such as the Shad Landing Experience, which have a beneficial effect on young visitors and encourages continued park visitation.
- Continue to offer an Eagle Watch at Milburn Landing with adequate restrictions to protect Eagle habitat.
- Cooperate with Worcester County, the Town of Snow Hill and Pocomoke City on potential future events and marketing opportunities.
- Evaluate programs that are currently popular with visitors and continue these programs while discontinuing programs that are unpopular.
- Facilitate the water taxi/river tour services of the riverboat Miss Rai or other similar providers in the future by coordinating events at the park with their schedule/availability.
- Look to acquire additional lands in order to create contiguous DNR-managed land holdings that will provide further opportunities for trail connections and extensions, as well as planning for additional Park amenities.

Goal #7: Market the Park for both in-State and out-of-State Visitors

- With the help of the State Office of Tourism and Worcester County Tourism staff market the Park to inform potential Park visitors both in and outside the State about improvements made at the Park.
- Create displays and hand outs for Welcome Centers throughout the State highlighting the newly improved Park and the amenities that it has to offer.
- Promote Park on the internet and the media wherever possible.

Proposed Improvements

Proposed improvements are based on population projections in the region, information gathered during the survey, planning analysis of the Park, and input and requests made by Park management staff. All the proposed improvements will be further circulated for internal review and all applicable permits and approvals (such as MDE and Critical Area Commission) required, will be obtained prior to moving forward with the actual improvements. Recommendations related to these improvements are shown on **Map 9A: Proposed Improvements-Shad Landing** and **Map 9B: Proposed Improvements-Milburn Landing** (following page #69) and are described below.

Shad Landing

Recommendations made below appear in order of their location on entering the Park and making a right past the Administration Building and going around the Park in a loop.

Administration Building Addition/Renovation

The administration building, located at the entrance to Shad Landing is the first point of contact for visitors coming to the Park. This building lacks adequate office space, file storage, restrooms, and a conference/meeting room. The proposed addition is 15 feet by 30 feet on the south side of the current building and will require the removal of a couple of trees. The 450 square foot addition as well as remodeling of the interior of the current building, the renovated building will include the following:

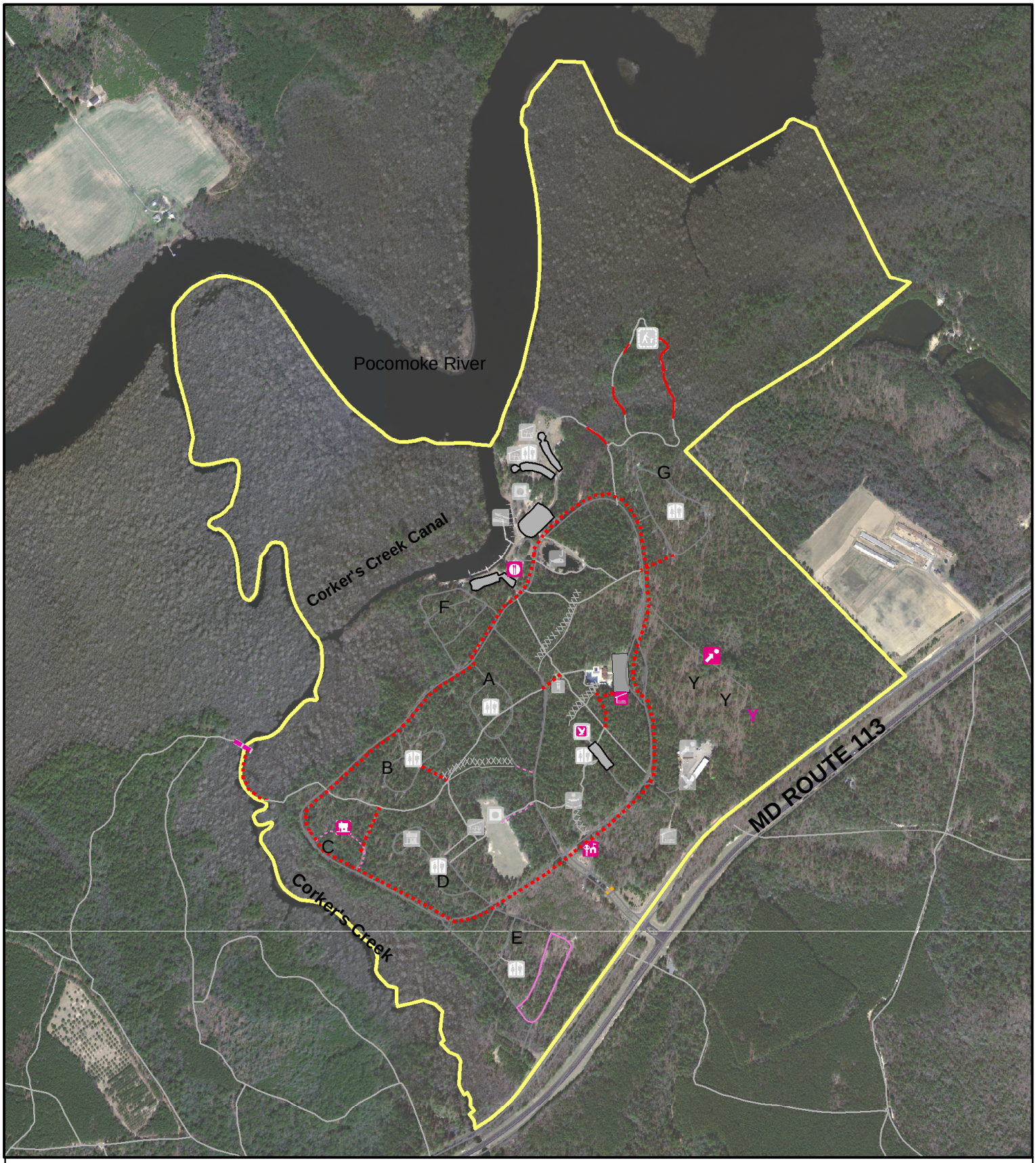
- Conference/Meeting Room
- Total of 6 office areas with 2 located in the general reception area and the other 4 closed office rooms in the building for various Park staff including the Manager.
- File storage area
- Kitchenette/Lunch Room
- 2 unisex restrooms
- 2 additional parking spaces

A general sketch showing the proposed addition and the parking spaces is provided as **Conceptual Sketch 1**.

Netted Aviary adjacent to Nature Center (NC)

Currently, for the various NC programs held at the Park, birds are brought from the aviary to be temporarily housed at the NC. These birds are held in small cages for the entire day prior to being returned to the aviary. Park Naturalists indicated the need for a larger bird holding area to reduce stress on the birds from being held in small cages at the NC and also to provide a more open display area for birds in a location easily visible to the public. Therefore, it is proposed that a 12 to 15 foot by 20 to 25 foot pentagon shaped "mini" aviary be located outside of the NC building (**Conceptual Sketch 2**). This aviary will have a height of at least 12 feet which will give large birds such as raptors adequate room to move around and at the same time it will be easy to gather these birds to transfer them back to their home at the larger aviary (**Conceptual Sketch 3**).

In addition it is recommended that a set of unisex restrooms be built at the NC building since the adjacent bath house currently used by staff and visitors is not heated and therefore closed during winter when the Nature Center is still open to the public.



Pocomoke River State Park Land Unit Plan

Map 9A: Proposed Improvements Shad Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Public Lands, Policy, and Planning from data available at the time of analysis and may not match current conditions.

0 550 1,100 2,200 Feet

Legend

- State Park Boundary
- Parking Lots
- Maintenance Building
- Aviary
- Bunkhouse
- Boat launch/Marina
- Comfort Stations
- Nature Center
- Pavilions
- Play Area
- Fishing Pond
- Ampitheater
- Trail of Change
- Trails
- Roads

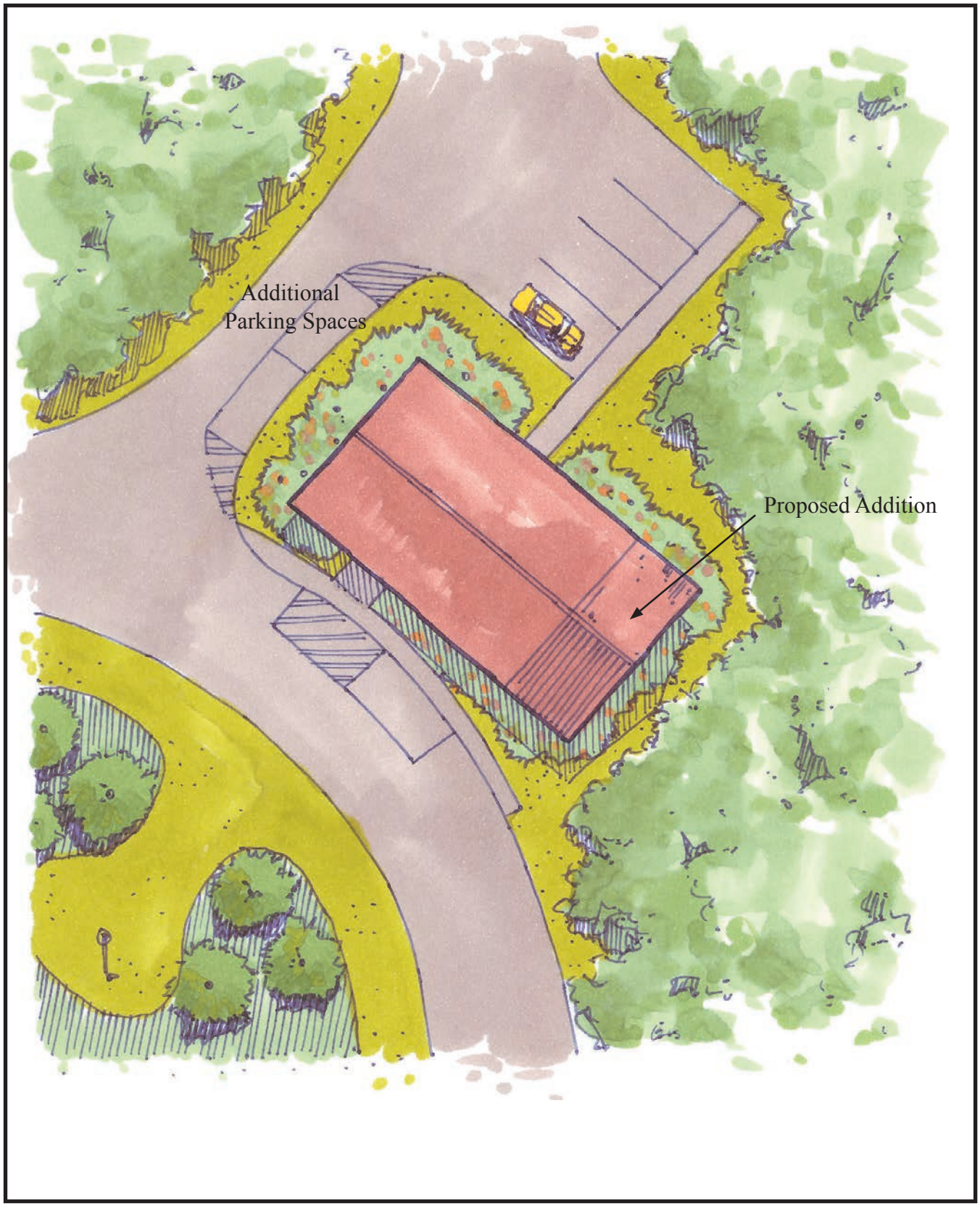
Camp Loops

- A Fox Den
- B Deer Run
- D Robin's Nest
- E Blue Heron
- F Water's Edge
- G Acorn Trail
- Y Youth Group

Proposed Improvements

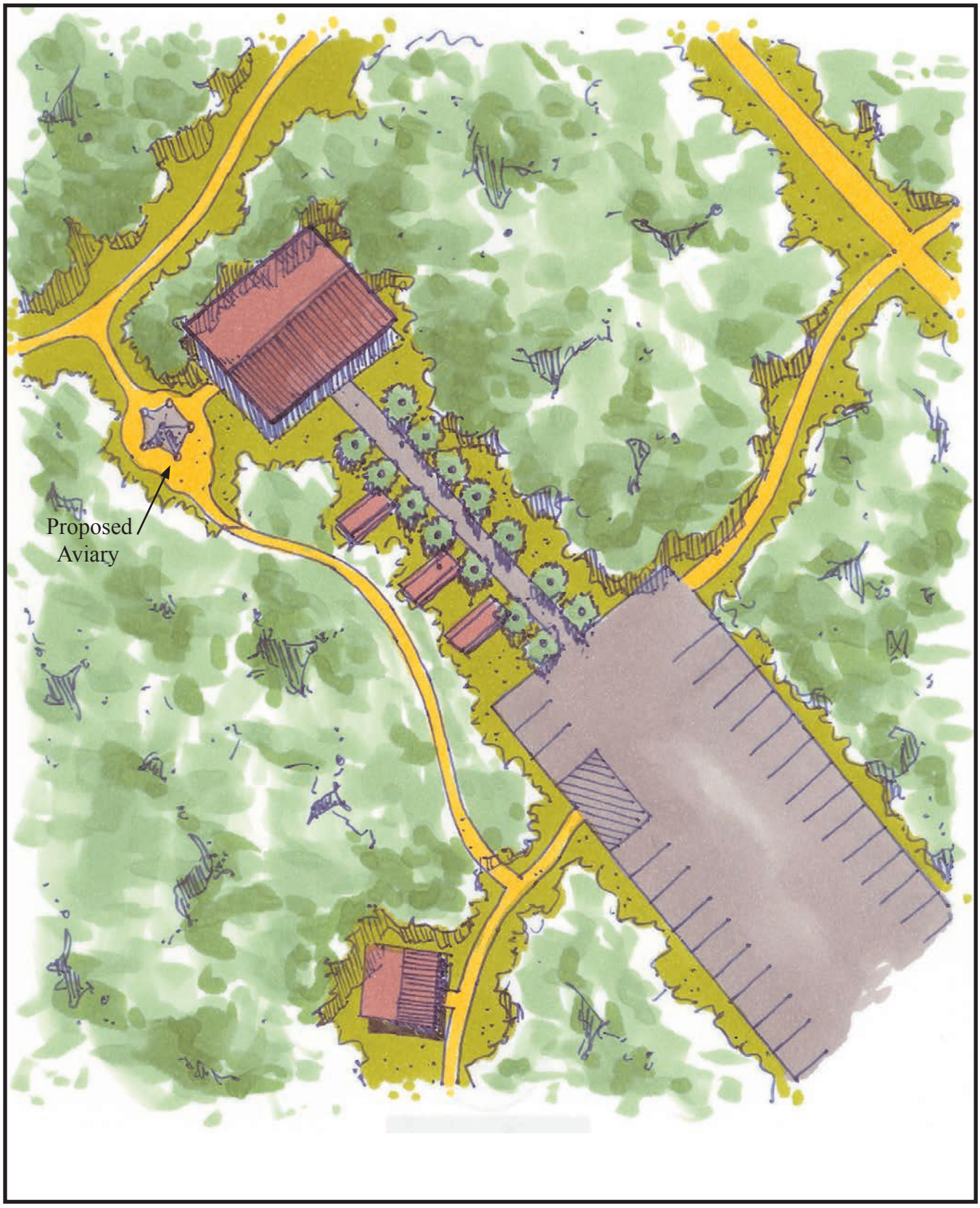
- Pavilion
- Camp Store
- Admin. Building
- Aviary
- Swimming Pool
- Full Service Cabins
- Pit Toilet
- C Cardinal Camp Loop
- Proposed Trails
- Proposed Trail Removal
- TOC Decking
- Proposed RV loop
- Proposed Roads
- Bridge
- Entrance Gate
- Y Y.G. campsite

N



Administration Building Expansion

Conceptual Sketch 1



Netted Aviary Adjacent to Nature Center

Conceptual Sketch 2

Netted Aviary Adjacent to Nature Center Elevation

Conceptual Sketch 3

New Pavilion

Currently, there are three pavilions located at Shad Landing with two of these available for rental purposes and one free for use by Park visitors. An additional pavilion is being proposed to accommodate the needs of the NC programs, swimming pool users, and the youth who camp in the youth camping areas. This proposed location is south of the swimming pool parking lot and is in close proximity to the youth camp sites and the NC building. It is recommended that this pavilion have a capacity of 50 people and be equipped with a fire place, an outdoor kitchen and grill, as well as bathrooms.

The following uses are envisioned for the new pavilion:

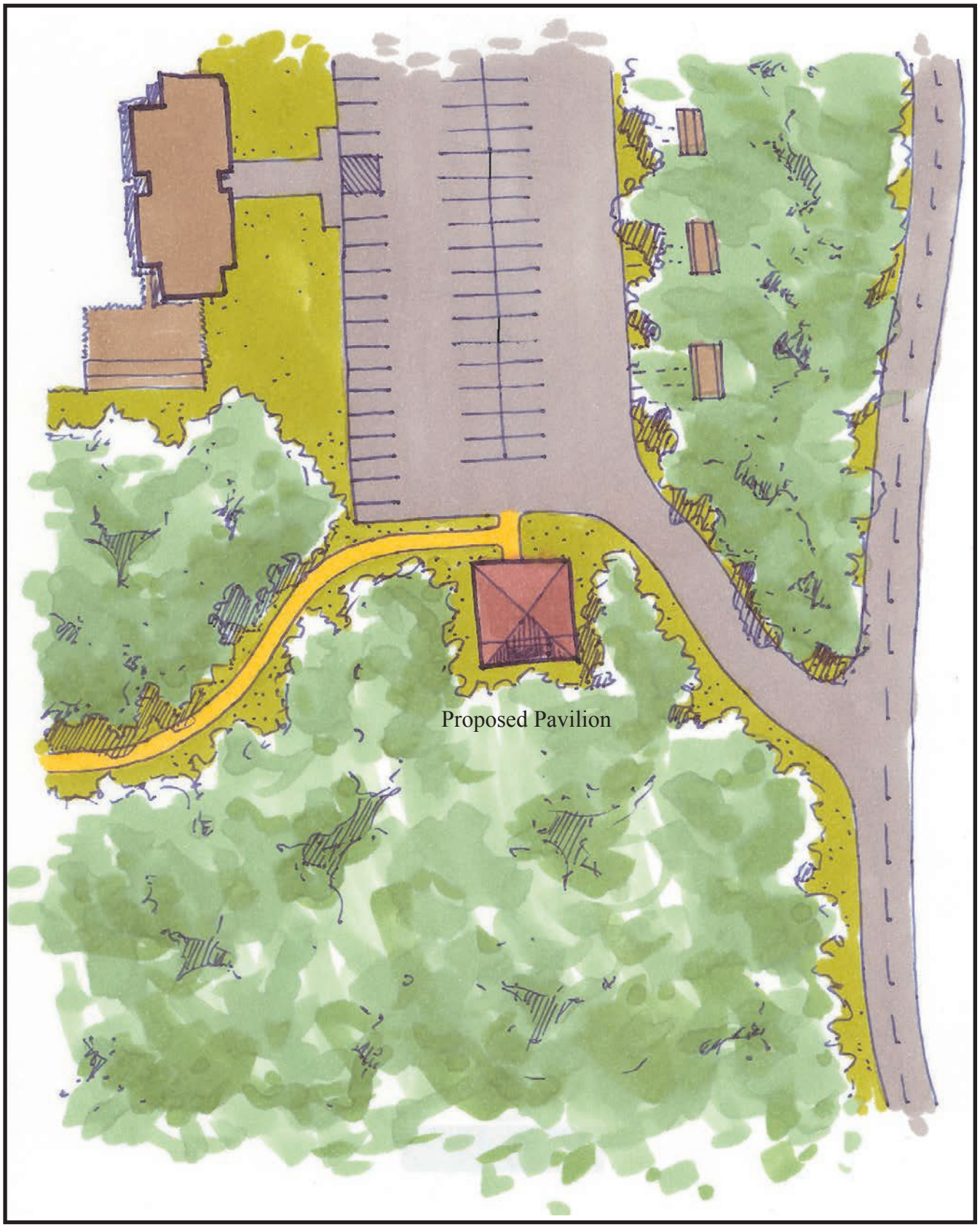
- Rented to park visitors using the swimming pool and looking to host gatherings such as birthday parties, family reunions, etc;
- Used by the NC staff for their programs that are held outdoors but need shelter from the sun and rain; and
- Used by youth group campers for evening gatherings and for their use during inclement weather. (See **Conceptual Sketches 4 and 5**). A schedule and reservation system is recommended to be implemented in order to prevent user conflicts.

Another area recommended for improvements in the vicinity of the Swimming Pool Complex and across from the parking lot is an informal picnic area that has grown in popularity with pool visitors. Currently there are three picnic tables on natural surface underneath trees where visitors are known to picnic. These tables are generally occupied when the pool is open. Visitors are known to set up their own grills to cook hot dogs, hamburgers, etc. causing the possibility of small fires in an area where dry tree debris litters the forest floor. Therefore, this Plan recommends formalizing this picnic area by installing 3 stone dust pads of 20 feet by 12 feet size. In addition to the tables already available it is recommended that a grill be installed to ensure that cooking occurs in a comparatively safe environment.

Swimming Pool Renovations

The current swimming pool complex has a main pool and a wading pool. The main pool is very popular and used extensively by both campers and the general public since it is the only public pool in the tri-county area. The diving board at the pool has caused documented accidents in the recent past with children tending to jump high in the air prior to landing in the water. In order to avoid injuries and reduce liability to the Park it is recommended that the diving board be replaced with a tubular or "tunnel type" drop into the water that will preclude the need for the diving board (see **Conceptual Sketch 6**)

Due to the expenses associated with the management and oversight of the wading pool, which requires the same lifeguards watching the main pool to watch this pool and also the costs associated with maintaining this pool, it is recommended that a spray area/zero-depth aquatic pool replace the wading pool (see **Conceptual Sketch 6**). No life guards are required to patrol a zero depth pool. Therefore, the spray area is expected to reduce the manpower needed in this area. Overall, it has been observed throughout the country that spray areas are very attractive to children and therefore it could increase the number of visitors coming to the Park.



Pavilion for Swimming Pool/Nature Center/Youth Groups Conceptual Sketch 4

Pavilion Elevation

Conceptual Sketch 5

Children's Spray Area Adjacent to Swimming Pool Conceptual Sketch 6

The proposed spray area/zero depth Pool in its simplest form will contain two fountain type sprinklers that are no more than pipes running vertical starting from ground level to horizontal pipes overhead with shower-heads spraying water onto a specifically designed area. This area is envisioned to be rectangular in shape and will be approximately 30 feet by 200 feet in size. It will have a textured ±6" deep concrete slab laid at grade with a slight slope to form a non-skid surface. The spray area is similar to a play area except that it sprays water and creates a fun area for children who require no more supervision than the parents watching over their children. (See **Conceptual Sketch 7**)

Two gates beside the regular access to the pool are recommended for safe exit from the swimming pool complex during emergency situations. These gates will be located at the Southeast and Northwest corners of the Pool complex. (See **Conceptual Sketch 6**)

Youth Group Camping Site Improvements

Currently Shad Landing has two youth group camping sites named the Painted Turtle and Barred Owl campsites equipped with fire rings, water hydrants, a pit toilet, and a few picnic tables. One additional youth group camping site is proposed for a total of three youth group camping sites. It is also proposed that the current pit toilet known to have bad odors be replaced with a more modern facility, such as a composting toilet. Refer to *Map 9A: Proposed Improvements – Shad Landing* for location of the proposed Youth Camp Site.

Trail of Change Improvements

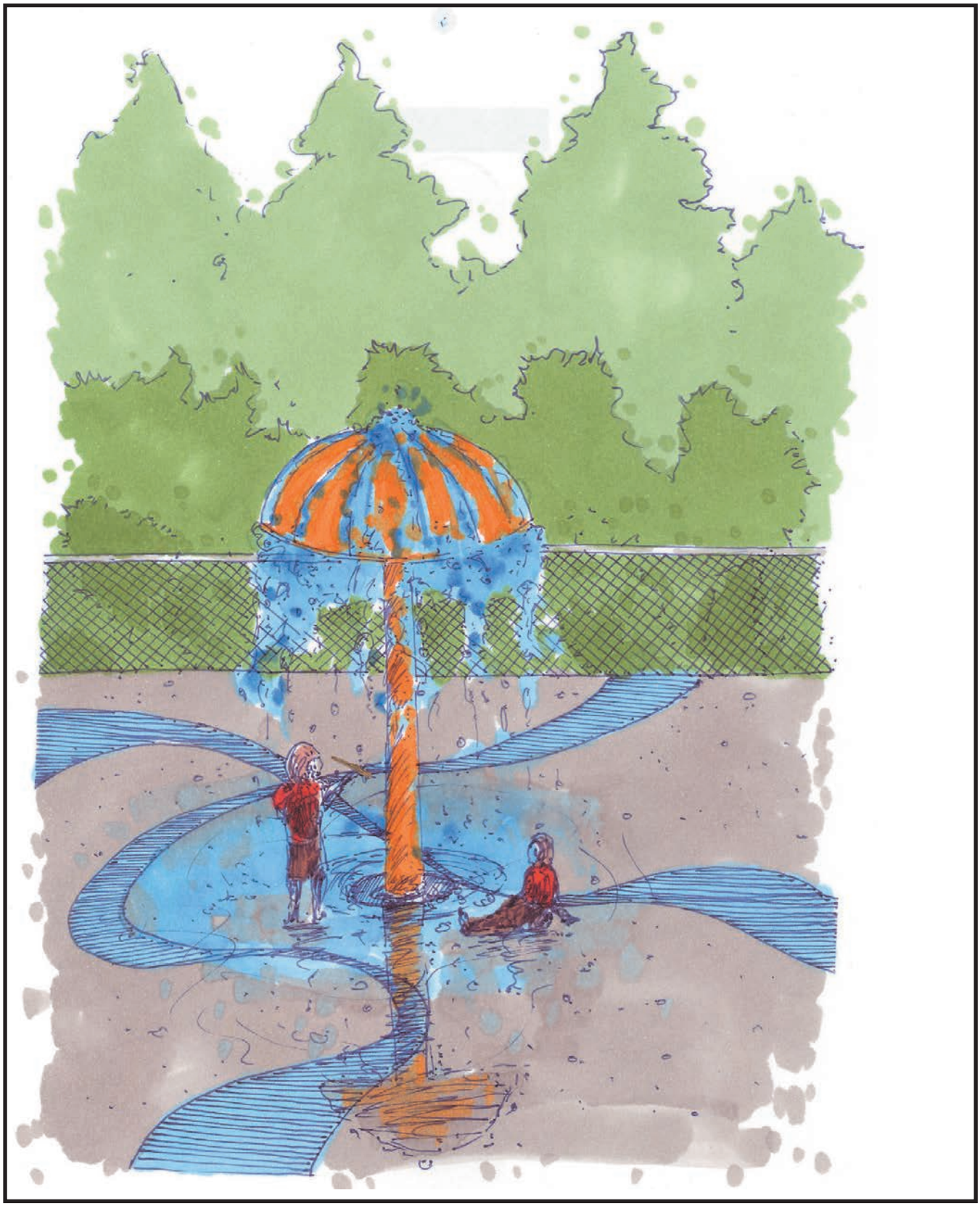
The Trail of Change currently covers approximately seven tenths of a mile and is located between Acorn Trail camp loop and the Manokin and Algonquin pavilions in the day use area. Currently, 0.25 miles or 1,320 linear feet of this trail is located within the Cypress swamp. The Park staff mulches this section of the trail every year in order to make it useable. Decking this section of the trail will aesthetically improve the trail, limit the amount of yearly maintenance required by the Park staff as well as protect the resource itself. The Trail of Change could also use improved signage as the existing signs are difficult to read and/or falling down into the cypress swamp. Additionally, while the main entrance to the trail is well marked, a sign should be placed at the back entrance to the trail located near the pavilions in order to let visitors know that there are two entrances into the Trail of Change. Refer to *Map 9A: Proposed Improvements – Shad Landing* for location of the proposed improvements at Trail of Change.

Marina Services/Camp Store Building Replacement

The Camp Store/Marina Services Building is a highly used, multi-functional building where numerous activities take place. Visitors stop by here to obtain registration information related to their camp sites, rent canoes and kayaks, to purchase merchandise, buy a snack, and just to sit down and relax while enjoying views of the Pocomoke River.

This building built in 1969 is one of the oldest buildings at the Park and requires major maintenance such as:

- Electric and heating upgrades;
- Full service commercial kitchen;



Children's Spray Area Elevation

Conceptual Sketch 7

- New windows and doors;
- Sprinkler system;
- Trenching and waterproofing lower storey walls;
- Additional bathrooms to meet demands;
- Formal office place; and
- Displays and merchandise sales.

It is recommended that that when the upgrades and improvements needed are carried out, that the renovated/remodeled building be designed to accommodate the various functions listed below and also contain elements of a green building as identified by the US Green Building Council:

- food concession area for sales and cooking (for sales and commercial kitchen),
- in-door/out-door dining area,
- camper registration,
- displays, exhibits, and marketing space,
- merchandise sales,
- guided tours/boat rental information,
- bathrooms (women's bathroom with 4 showers, 6 commodes, and wash basins and men's with 4 showers, 3 commodes and 2 urinals, and
- laundromat.
- fuel storage – firewood, charcoal, and fuel for boats

A concept sketch of the renovated building is provided as **Conceptual Sketch 8.**

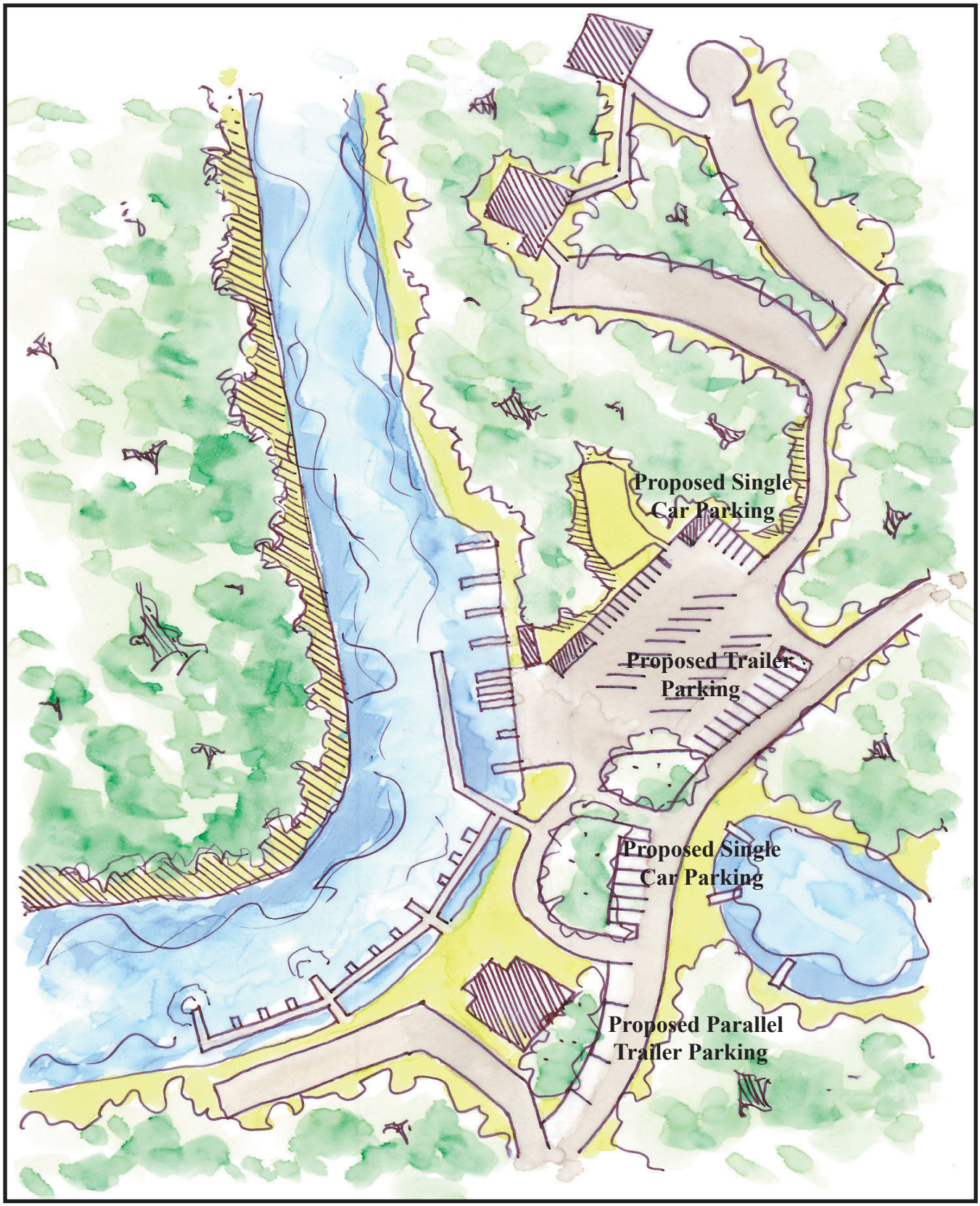
Also recommended in the Marina Services/Camp Store building area are improvements to parking as shown in **Conceptual Sketch 9.** These parking improvements are being recommended because currently the boat launch parking area is regularly full during summer and holiday weekends with cars and trailers coming to the Park for boating and recreational purposes. Currently there are 40 parking spaces in the boat launch area that include 23 trailer spaces and 17 regular car parking spaces. In addition, the camp store has a total of 59 spaces. However, in order to accommodate the parking demands in the boat launch area, the Plan recommends the additional parking as shown in **Conceptual Sketch #9**. It is also recommended that the parking lot improvements include adequate stormwater management, such as the creation of bio-retention areas or porous paving.

Trail Expansion: Bridge over Corkers Creek

The Brown trail within Shad Landing currently runs west into the Corkers Creek. It ends approximately 500 linear feet south of the Hudson Tract trails (within Pocomoke River State Forest) that run east into Corkers Creek. A connection between these two trail systems will require building a 500 linear foot boardwalk from the Brown trail to a 60 foot bridge over Corkers Creek. This connection will help to create an 11 mile trail system tying the State Park trails to the Hudson Tract and eventually the Tarr Tract trails within Pocomoke River State Forest. The proposed boardwalk will be similar to the boardwalk at Jug Bay Wetland Sanctuary in Southern Maryland and will be no more than 6 feet wide. The bridge will be 6 feet wide as well and will be appropriately elevated to

Marina Building

Conceptual Sketch 8



Marina Area Parking

Conceptual Sketch 9

allow for the passage of canoes and kayaks underneath. (See **Concept Sketches 10 and 11**). Wildland related requirements (as identified in the State Wildland Regulations "Maryland Code, Natural Resources §5-1201) will have to be met in order to build the proposed boardwalk and the bridge, which will be in an area designated as Wildlands. Also, this project will require obtaining tidal wetland permits as well Critical Area Commission approval.

Full Service Cabins

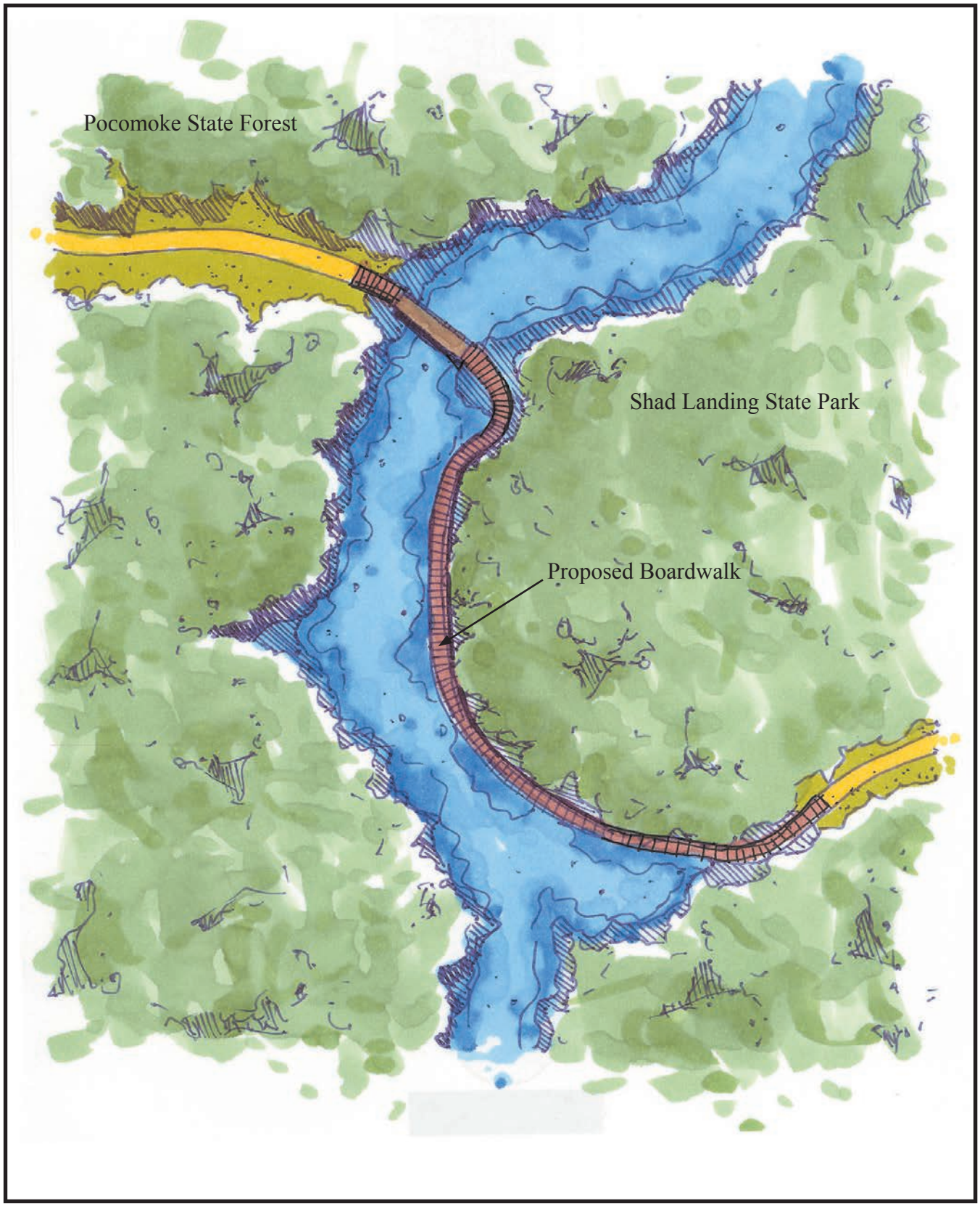
Currently, Shad Landing has 8 mini cabins but no full service cabins. The difference between these two types of cabins is that mini cabins do not have bathroom, kitchen, or living room facilities while the latter has these facilities. Based on the popularity of full service cabins in Parks that have these and in order to capture the segment of population attracted to these, the Plan recommends adding 4 full service cabins at the Park. These will be located at Camp Loop C that is currently located in close proximity to Robins Nest Camp Loop. It is recommended that this Camp Loop be shifted slightly to the west such that is located on an elevated surface and has two access points off of the ring road that runs through the Park (refer to *Map 9A: Proposed Improvements – Shad Landing*). It is further recommended that Camp Loop C be named "Cardinals Loop" in honor of the numerous cardinals seen at the Park. (See **Conceptual Sketch 12** for a plan showing the cabins).

Blue Heron Camp Loop Enhancements

There are currently 50 campsites located along 4 roads that make up the Blue Heron camp loop. This camp loop is the only camp loop in Shad Landing that does not have camper pads and in order to attract volunteer hosts for the Park, there is a need for services such as water hydrants, sewer connection to the dump station, and electric hook ups. Various campsites at the Park were surveyed for suitability of providing these services and the Blue Heron Camp Loop turned out to be the most suitable in terms of having a road network (with parallel roads) which is most appropriate for Recreational Vehicle (RV) pull through sites and is also in close proximity to the sewer dump station.

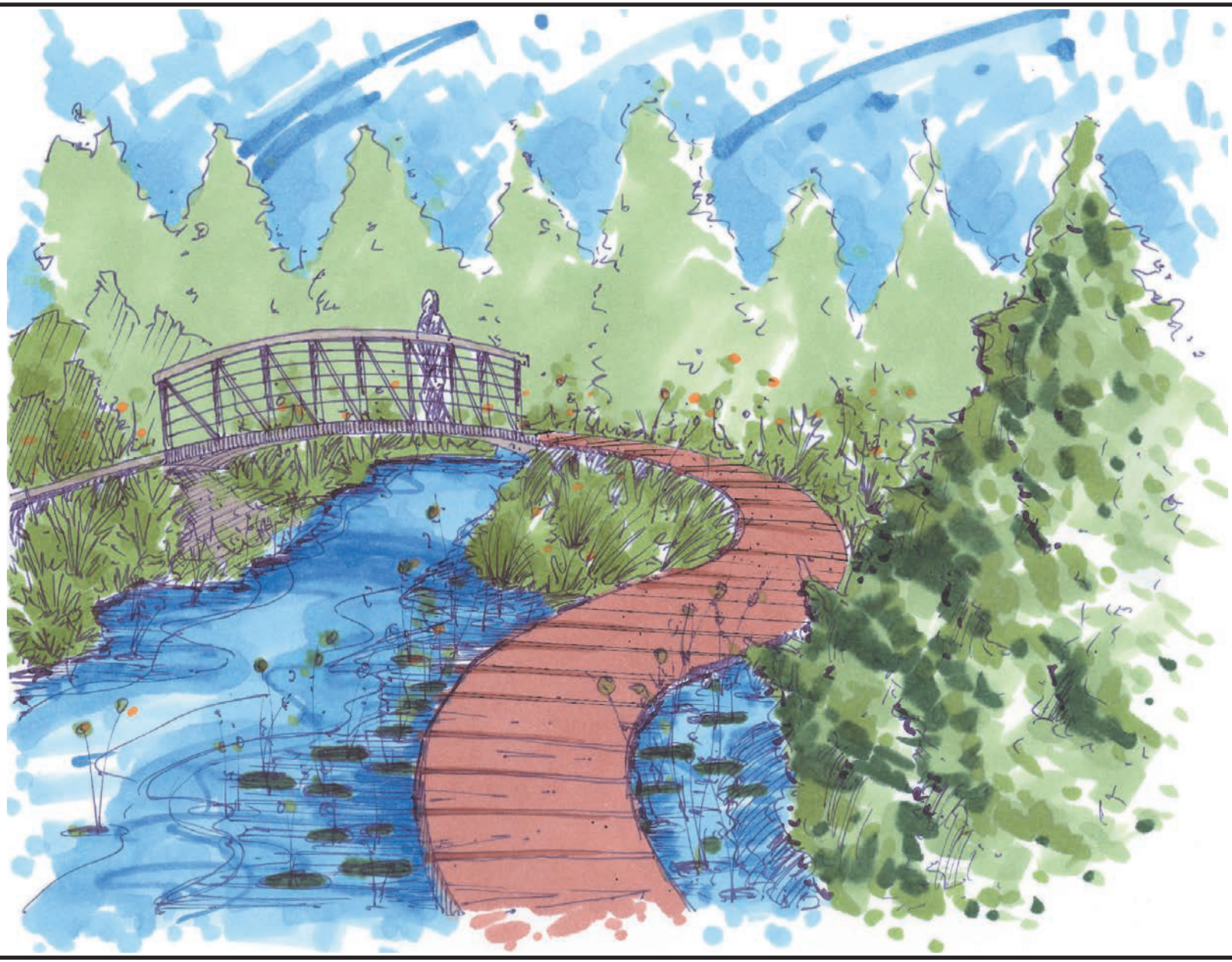
Camp hosts provide a valuable service to the Park by stationing themselves over extended periods of time at the Park and by being eyes and ears at the Park. In addition to providing security they also help clean the bath houses and the Park in general. Due to the extended nature of their stay and in order to attract an adequate number of camp hosts it is important to provide the services required to attract them. Further, there is a growing demand for camp sites that have sewer connections to dump stations which are very popular with large Recreational Vehicles (RV) campers. Therefore, in order to meet the needs of both camp hosts and other RV campers who need wider and deeper camp sites, it is recommended that 19 of the 50 campsites in the area shown in **Conceptual Sketch 13** be converted into 8 pull through RV campsites.

The proposed RV camping area within Blue Heron camp site sits closest to Maryland Route 113 and can comfortably house 8 pull through camp sites. The road system in this camp loop will allow for easy ingress and egress of RVs. Further, it is recommended that



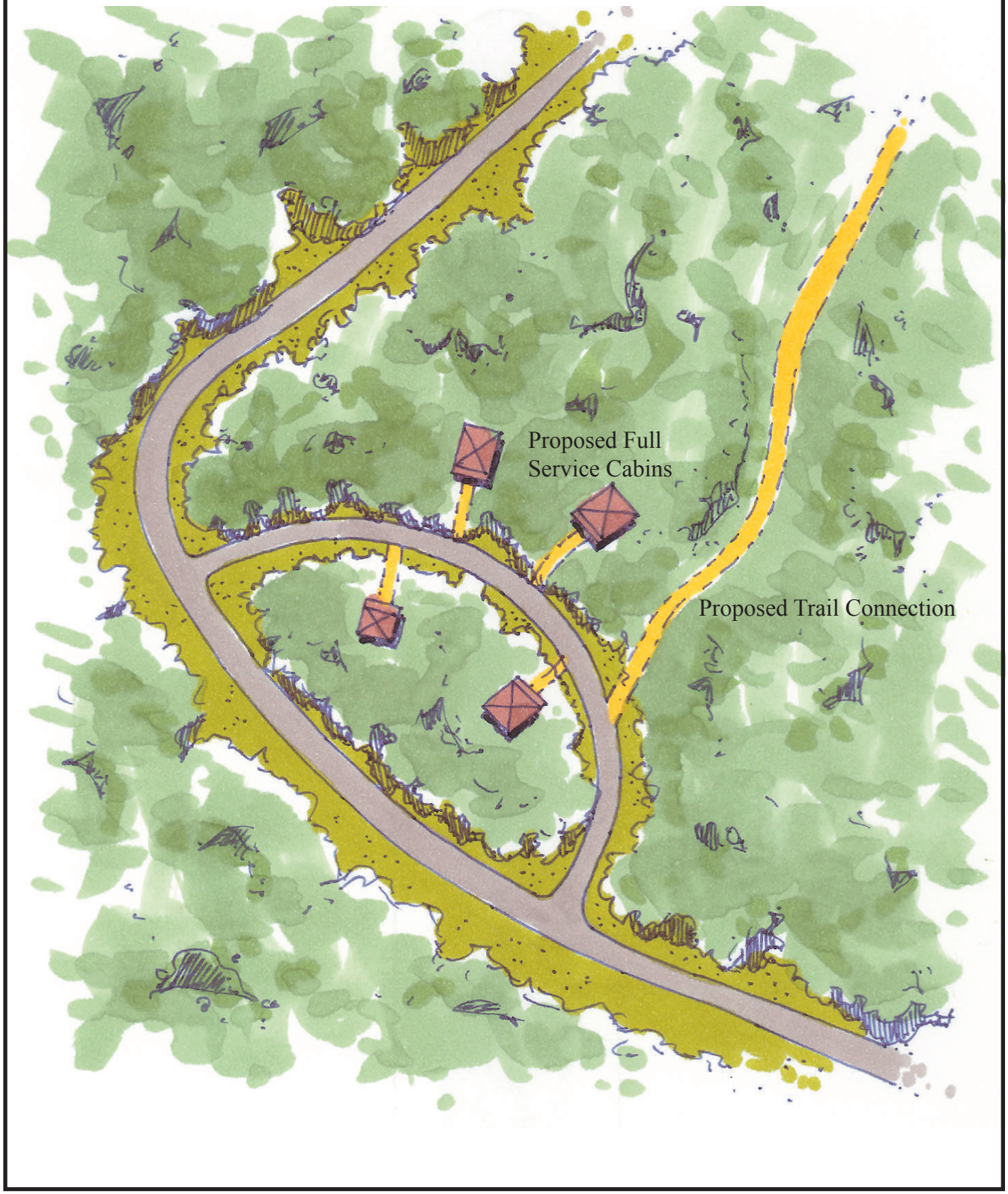
Bridge and Floating Trail at Corkers Creek

Conceptual Sketch 10



Bridge and Floating Trail at Corkers Creek Elevation

Conceptual Sketch 11



Full Service Cabins Conceptual Sketch 12

these 8 camp sites have full service hook ups, sewer hook ups, and one water hydrant on each site. (See **Conceptual Sketches 13**)

Trail Redesign
The current trails at Shad Landing total approximately 2.0 miles and the Trail of Change (TOC) occupies seven tenths of a mile of the total trail mileage. Except for the TOC the remaining trail system has unnecessary segments created by visitors looking for short cuts and the Park staff eventually marking these trails as legitimate trails. However, after a review of the entire trail system the Plan recommends that some of the unnecessary trail segments be removed and new segments added to create a well designed trail system as shown in *Map 9A: Proposed Improvements – Shad Landing*.

The new trail system will consist of an inner and outer loop with various connecting trails to different areas throughout the park. All trails will accommodate both hikers and bikers with the outer loop trail consisting of an approximately 6 foot wide trail aligned to cause minimal removal of trees. The total mileage of trails within the Park will increase from 2 miles to 4 miles with the removal of 0.33 miles and addition of 2.3 miles of trails. Most of the trail system will contain appropriate pervious material with adequate soil stiffeners such that is suitable for hikers and bikers. Asphalt surface is not recommended for trails due to the large number of trees at the Park whose roots can tear up the asphalt surface leading to expensive repairs. It is recommended that ongoing trail maintenance and management be assigned to a "Friends of Pocomoke River State Park" type volunteer group.

Outside of trails within Shad Landing it is recommended that trail connections to the Town of Snow Hill be made either via Maryland Route 113 (which would be a 2 mile connection) or by connecting Trail Change to the Town via the State owned Heritage Conservation Fund (HCF) site (1.5 mile connection). Since foot trails are permitted on this HCF site, these can be built as long as they do not disturb any rare, threatened, or endangered species.

Milburn Landing
Proposed improvements at Milburn Landing State Park are shown in **Map 9B: Proposed Improvements – Milburn Landing**. These are also described below.

Maintenance Shop Building Bathroom Addition
In order to better serve Park staff and in order to meet both federal and State worker Health and Safety requirements, an 8 foot by 8 foot bathroom addition is recommended for the maintenance shop located at the entrance to the Park. This bathroom will preclude the need for Park staff to travel to the main bath house for the camp loops located in the interior of the Park.

Mini-Cabin Additions
Milburn Landing currently has four mini cabins that are very popular and regularly occupied when the Park is open. Therefore, 4 additional mini cabins are recommended to be built on the road of the former campground site along the existing roadbed opposite

Pocomoke River State Park Land Unit Plan Map 9B: Proposed Improvements Milburn Landing Area

March 2007

MARYLAND DEPARTMENT OF NATURAL RESOURCES

This map was created for general planning purposes. It was compiled by Resource Planning from the data available at the time of analysis and may not match current conditions.

0 500 1,000 2,000 Feet

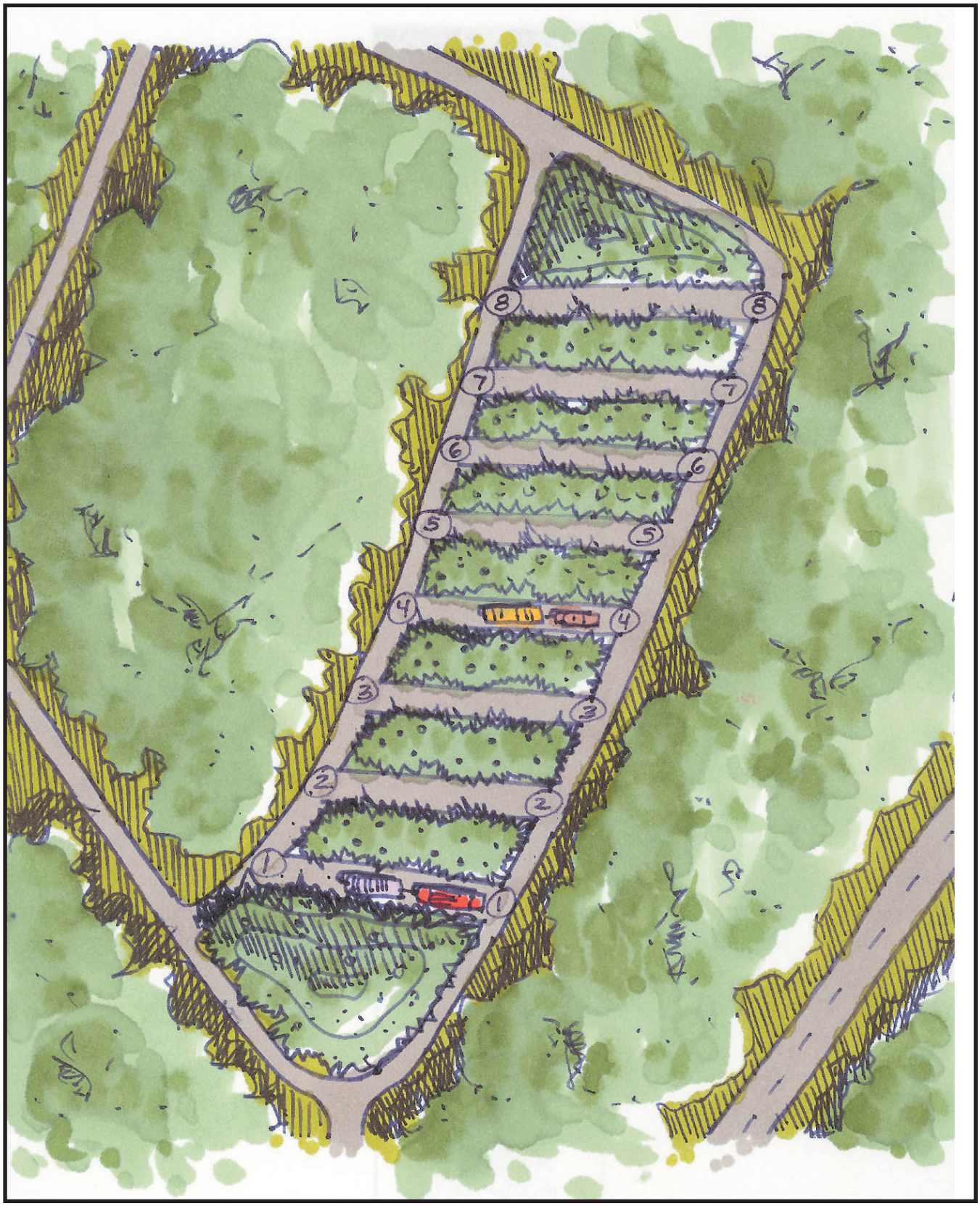
Legend

- State Park
- Parking Lots
- Cabins
- Bathroom
- Pavilions
- Playgrounds
- Gatehouse
- Boat Launch
- Campsites
- YG Campsites
- Roads
- Trails
- Old Logging Roads

Proposed Improvements

- Boating Slips
- Mini-Cabins
- Landscaping
- Bathroom addition

N



E Loop For Trailers

Conceptual Sketch 13

campsite 16. It is further recommended that these cabins (along with the current 4 cabins) be air conditioned. (See **Conceptual Sketch 14**)

Additional Tie Ups at Fishing Pier

There are currently two boat tie ups located near the Fishing Pier at Milburn Landing. The Plan recommends the addition of three additional tie ups to bring the total to five. Additionally, it is recommended that the area in front of the Nassawango pavilion be landscaped in order to reduce run off. (See **Conceptual Sketches 15 and 16**).

Boat Launch Parking Lot Redesign

The current boat launch parking lot is unpaved and lacks marked spaces for cars and trailers. It is recommended that this area be improved with bioretention type landscaped islands with 6 native trees, marked parking spaces for cars and trailers that will ensure a smooth flow of traffic, ADA parking spaces (retain existing spaces), and a sign board with Park information. (See **Conceptual Sketch 17**)

Bald Cypress Nature Trail Renovations

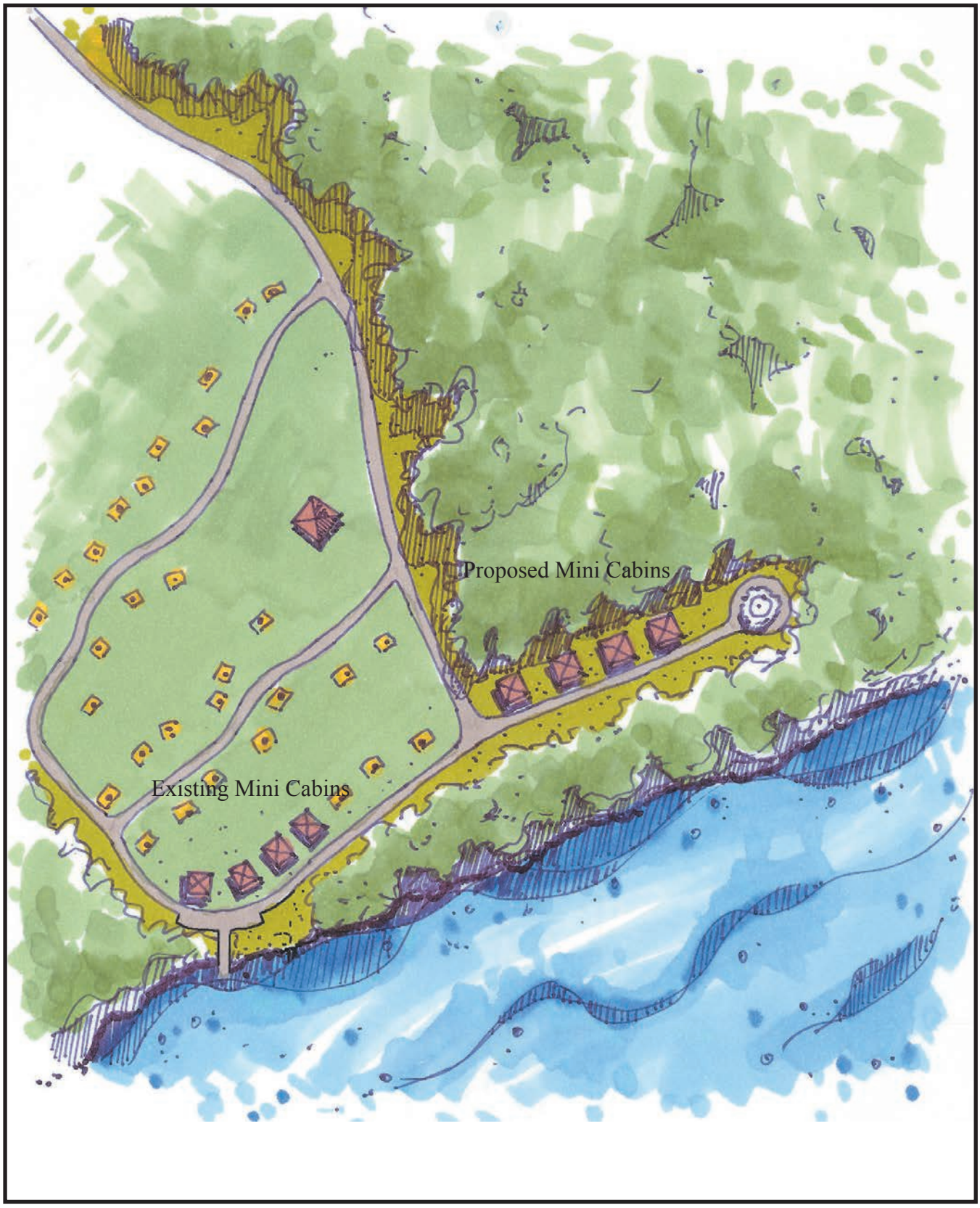
The Bald Cypress Nature Trail is a 1 mile self guided trail. While this trail runs adjacent to nearby cypress swamps, the trail does not run through the swamps. An interpretive sheet is available at the trailhead which matches up with twenty-four posts located throughout the trail. Many sections of the trail are narrow and dense. Additional maintenance is needed to open sections of this trail to ensure adequate head room and clear pathway for hiking. The trail surface itself is completely natural. Unlike the Trail of Change in Shad Landing, there are no mulched areas in the Bald Cypress Nature Trail. There are however, three footbridges in need of upkeep and maintenance. One of these footbridges extends into an observation deck that needs to be replaced. Overall, the Plan recommends clearing the understory, enhancing/improving the directional signage, and providing interpretative forms at the trailhead and additional self guided interpretive signs along the entire trail. A total of 200 linear feet is recommended for improvements that include boardwalks, decking, wooden footbridges, and addition of self guided interpretive signs.

Additional Recommendations

There are few other minor recommendations made in this Plan related to improving current facilities at both Shad and Milburn Landing. These include:

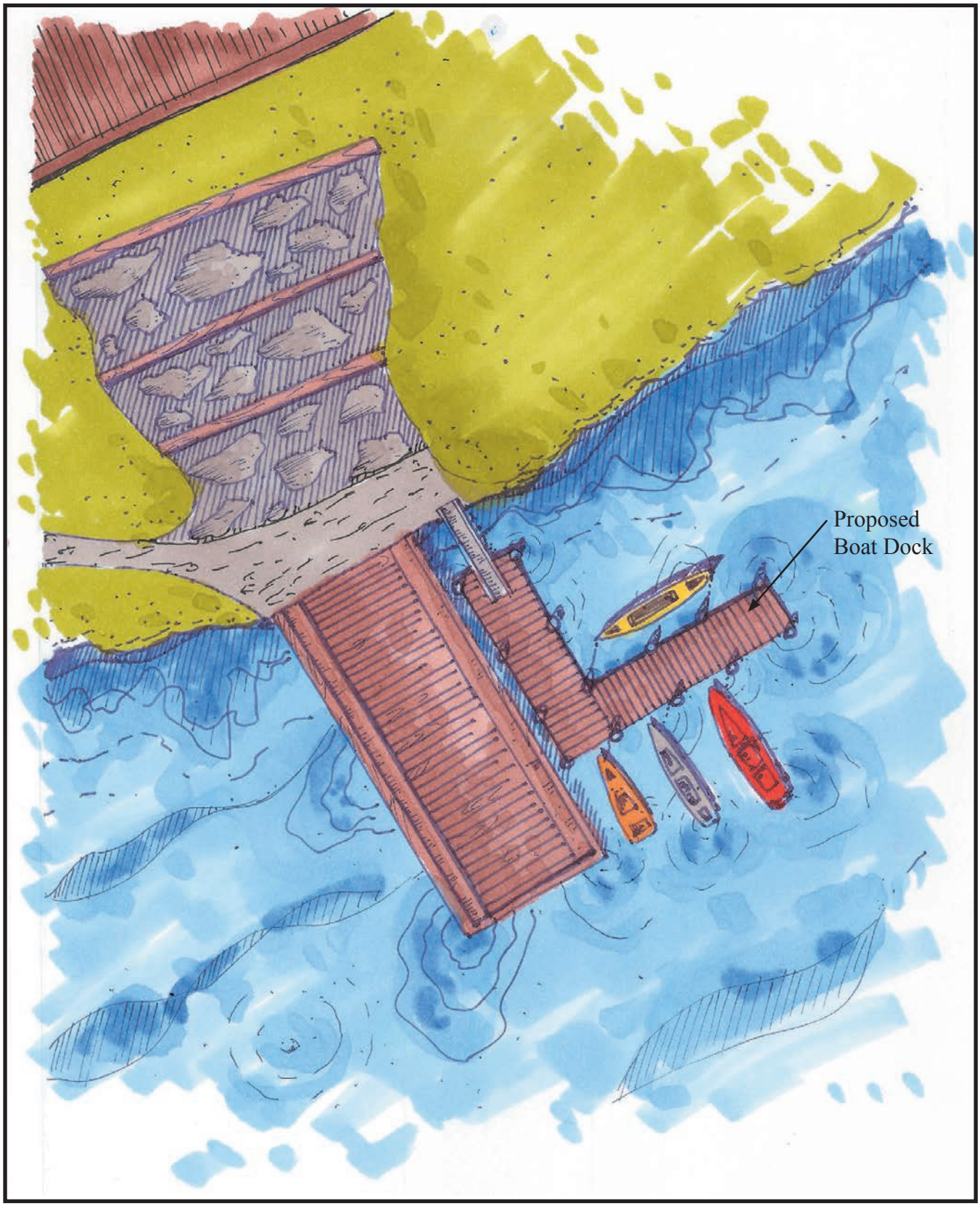
- Place a metal swinging gate at the entrance to Shad Landing in order to securely shut the Park when it is closed for day use;
- Provide air conditioning units at 5 mini cabins at Shad and 4 at Milburn;
- Provide electricity to 8 mini cabins at Robins Nest camp loop (that do not have it) and 7 regular camp sites increasing the proposed electric sites to 15 additional electric sites (only 7 currently have electricity);
- Provide one additional water hydrant at Fox Den and Deer Run camp loops;
- Replace outdated playground equipment at 4 different areas of the Park;
- Installation of a floating canoe/kayak launch at Shad Landing Area;
- Bath house for Waters Edge Camp Loop;
- Comfort Station at Sports Field a Shad;

- Additional Full Service Camp Sites;
- Additional Camper Cabins at Shad; and
- Professional display development and installation at the Nature Center.



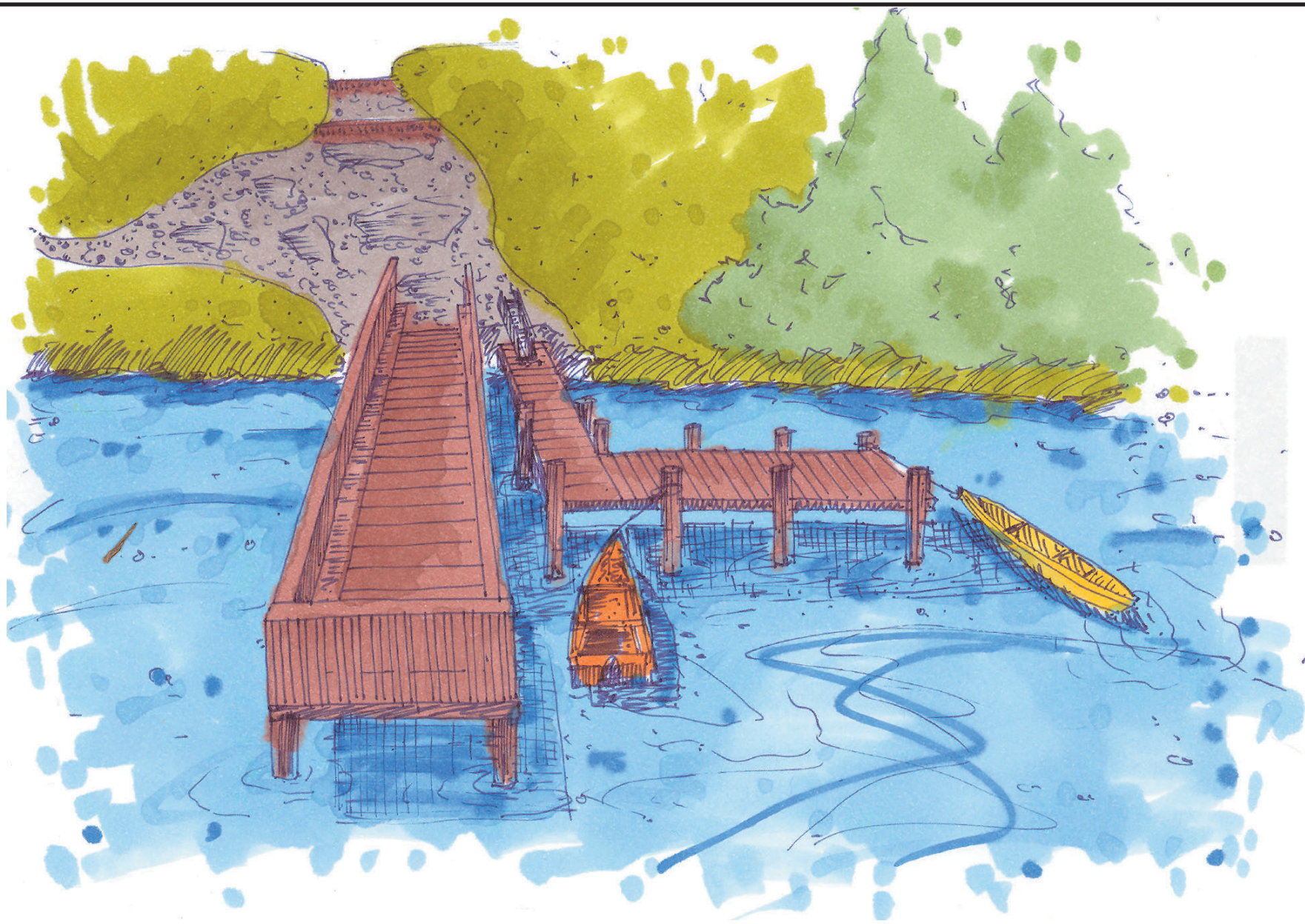
Mini-Cabins

Conceptual Sketch 14



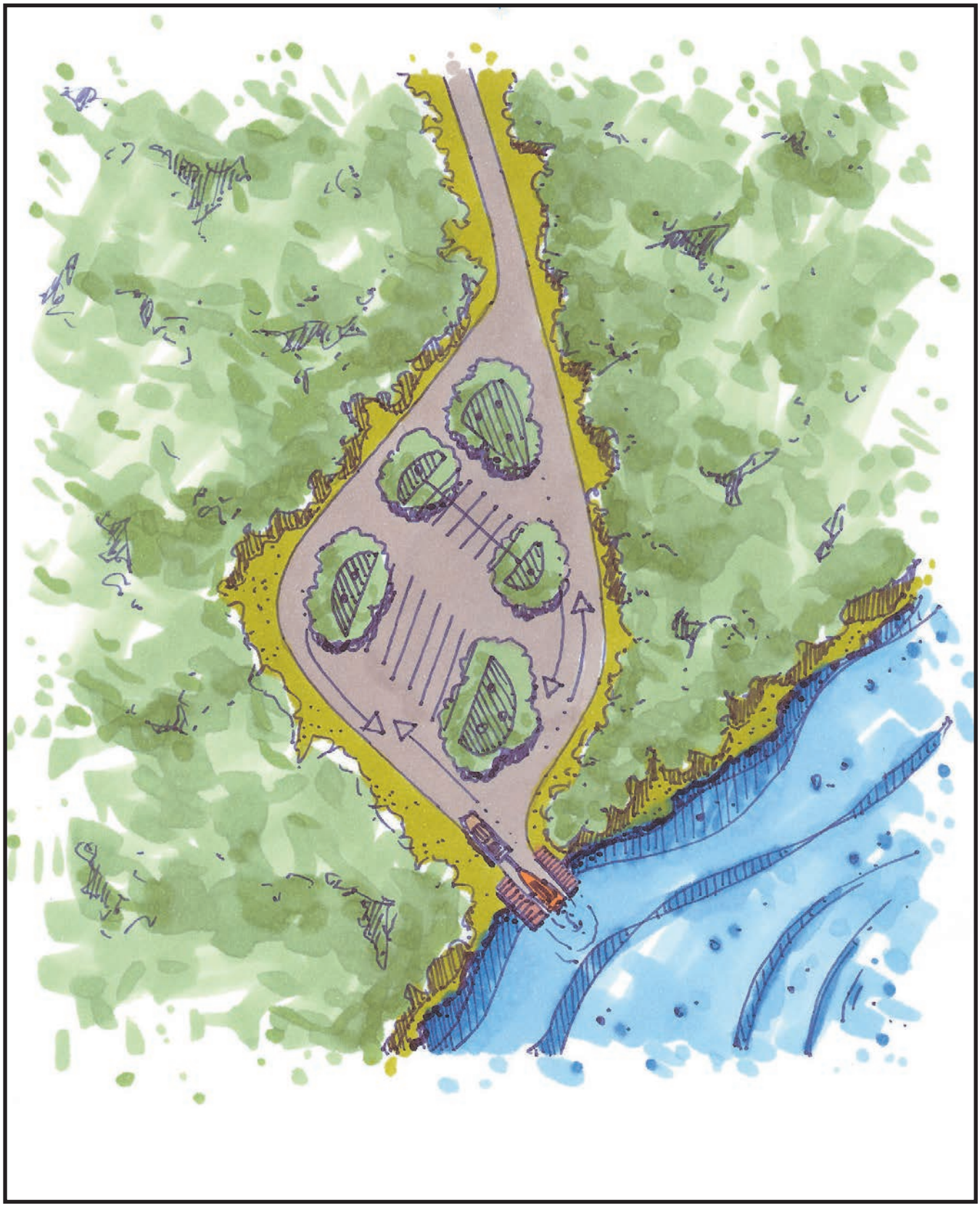
Boat Docking at Fishing Pier

Conceptual Sketch 15



Boat Docking at Fishing Pier Elevation

Conceptual Sketch 16



Landscaping Improvements at Boat Launch Parking Lot Conceptual Sketch 17

Current and Proposed Staffing

Information related to current and proposed staffing was obtained from the Maryland Park Service (MPS). Current staff includes a Park Manager, an Administrative Assistant, a Park Service Supervisor, a Maintenance Chief IV, 3 Park Service Associates and Park Technicians. Seasonal staff hired between March and December included 8 lifeguards, 8 maintenance workers, 5 cashiers, and 2 naturalists. In 2006 a short term contractual Ranger, Park Technician, and clerk were hired to fill in for deficiencies in the permanent work force. Additionally, the concession operations hire 4 seasonal staff members annually who are integrated with the operational staff due to cross over duties. These include a store manager, a cashier and two dock attendants.

The current staff level is greatly reduced from optimum operating conditions of previous years. Two additional rangers and two full time park technicians are necessary to fully compliment the current staff. Additionally, a full time Naturalist is required to oversee the Scales and Tales operation. Apart from permanent staff seasonal employees are needed to offer full services at the Park. The Pool currently operates 6 days a week with three days at reduced capacity due to a self imposed guard shortage. Milburn Landing has reduced operations due to a shortage of funds to pay for seasonal employees who would assist in maintaining the area.

Until recently the Park had 14 employees carrying out the various functions including those of Park rangers who were responsible for law enforcement and operational duties inside the Park. Although law enforcement is currently provided by Natural Resource Police, the Park still needs the same number of staff in Park Service Associate positions to provide the operational functions that rangers provided such as visitor service, boundary management, Park programs, etc.

Based on current and future Park needs, the Plan is proposing a total of 12 staff members for Pocomoke River State Park to include a Park Manager, Assistant Manager, an Administrative Assistant, four rangers and their lead, two Park Technicians and one Maintenance Supervisor. The staffing request proposed in **Table 16** below reflects the staff needed for the Park to function efficiently both currently and in the future at the Park.

Table 16: Past, Current, and Proposed Staffing

Staffing Position	Past	Current	Proposed
Park Manager	1	1	1
Assistant Manager	2	1	1
PSA Lead	0	0	1
Administrative Assistant	1	1	1
Maintenance Chief	1	1	0
Maintenance Supervisor	0	0	1
Park Technician	3	2	2
Park Service Associate (Scales and Tales Manager)	1	0	1
Park Service Associate (Rangers)	1	3	4
Park Rangers (Law Enforcement Officers)	4	0	0
Total	**14**	**9**	**12**

Cost Estimate of Proposed Improvements

Table 17 provides a cost estimate for the proposed improvements. As documented in the Table the total cost of these improvements is estimated to be approximately $5.3 million. These costs are in addition to the ongoing costs associated with maintaining bath houses, potential costs associated with dredging Corkers Creek Canal, and ongoing maintenance of existing improvements not listed in *Table 17*. By completing the proposed improvements, the Park will become more attractive to visitors in and around the region and is more likely to increase future visitation. This is especially true for visitors from the Towns of Snow Hill and Pocomoke City who are looking for things to do in the local area. Simple trail connections leading to the Park from the Towns as well as making other recommended improvements could attract a larger audience of hikers, bikers, birdwatchers, NC visitors, kayakers and canoeists not only from the Towns but from the surrounding region of the Park. This could include visitors not only from the Baltimore region but also from other States of the country. Lastly, it is important to note that adequate marketing of the Park is necessary to spread the word regarding the Park and the improvements once these are implemented.

Table 17: Cost Estimate of Proposed Improvements (Appearing in Order of Recommended Priority)

PROPOSED IMPROVEMENTS	QTY.	PROJECT DESCRIPTION/COMMENTS	Dimensions	TIME FRAME			
				PHASE I (2010-2011)		PHASE II (2011-2014)	
				DESIGN	CONST.	DESIGN	CONST.
Shad Landing							
1. MARINA SERVICES/CAMP STORE BUILDING RENOVATION	1	Renovation and remodeling of the current Marina Services/Camp Store Building to include food concession area(for sales and commercial kitchen),in-door/out-door dining area, camper registration, displays, exhibits, and marketing space, merchandise sales, guided tours/boat rental information, bathrooms (women's bathroom with 2 showers, 5 commodes, and wash basins and men's with 2 showers, 3 commodes and 2 urinals, and Laundromat.	Approx. 5000 sq. ft.	$200,000	$2.5 million		
2. TRAIL OF CHANGE IMPROVEMENTS	1	Decking 0.25 mi of trail and improve signage	0.25 mi		$100,000		
3. METAL SWINGING GATE	2	Provides Park Security at both roads leading in and out of Park	15 feet each		$30,000		
4. ELECTRICITY	15	Add electrical hook ups to 8 mini cabins and 7 camp sites (total of 15) at Robin's Nest Camp Loop	N/A		$100,000		
5. WATER HYDRANTS	2	Add water hydrants to Fox Den and Deer Run loops	N/A		$8,000		
6. WINDOW AIR CONDITIONING UNITS	5	Add AC to the 5 Mini-Cabins at Robins Nest currently without AC			$2,000		
7. PICNIC AREA IMPROVEMENTS	3	Add 3 stone dust pads for the picnic tables currently available along with 3 outdoor grills in the area across from Swimming Pool parking lot that has 3 picnic benches	20'X12'		$2,000		
8. ADMINISTRATION BUILDING ADDITION/RENOVATION	1	Construct addition to the Administrative Building and remodel entire building to include offices, meeting room, kitchenette, restrooms, and storage	30' x 15'		$350,000		
9. SWIMMING POOL RENOVATIONS							
-Children's Spray Area		Replace wading pool with children's spray area	30'X200'		$75,000		
-Tubular Water Slide	1	Replace diving board with tubular water slide	15' length		$25,000		

PROPOSED IMPROVEMENTS	QTY.	PROJECT DESCRIPTION	DIMENSIONS	TIME FRAME			
				PHASE I (2010-2011		PHASE II (2011-2014)	
				DESIGN	CONST.	DESIGN	CONST.
10. FULL SERVICE CABINS	4	Construction of 4 full service additional cabins on designated sites. Similar to those at other State Parks	N/A				$600,000
11. BLUE HERON CAMP LOOP ENHANCEMENTS	8	Replace 19 campsites with 8 double sized RV sites. These will have 50 amps electricity hook ups, one water hydrant. Approx. $10,000 per site creation.	N/A				$80,000
-Sewer Hook Up	8	Add sewer connection from each site to dump station	N/A				$25,000
12. TRAIL REDESIGN	N/A	Create inner and outer loop by adding and removing trails that have pervious stone dust path with soil stiffeners (approx. $100,000 per mile)	6'wide Add 2.2 miles Remove 0.33 mile				$220,000
13.NC IMPROVEMENTS NETTED AVIARY ADJACENT TO NC	1	Construct netted aviary adjacent to Nature Center	12'X15'X20' 0r 15'X20'X12'				$60,000
RESTROOM ADDITION TO NC	2	Unisex bathrooms in the existing building	8'X 8'			$15,000	$60,000
14. NEW PAVILION	1	Construct a 50 people pavilion with bathrooms and fireplace.	40'X 60'				$310,000
15. YOUTH CAMPING SITE IMPROVEMENTS	1	Addition of 1 new youth camp site similar in size to existing camp sites with 10 benches	N/A				$2,000
-Pit toilet		Replace pit toilet with same size composting toilet	N/A				$20,000
16. TRAIL EXPANSION: BRIDGE OVER CORKERS CREEK	1	Expansion of the existing Brown Trail with a floating boardwalk and bridge. Since this project is located in Wildlands this project will have to be constructed by non-mechanized means.	500' boardwalk 60' bridge				$140,000
SUB-TOTAL – SHAD LANDING				**$200,000**	**$3,192,000**	**$15,000**	**$1,517,000**

PROPOSED IMPROVEMENTS	QTY.	PROJECT DESCRIPTION/COMMENTS	Dimensions	TIME FRAME			
				PHASE I (2010-2011)		PHASE II (2011-2014)	
				DESIGN	CONST.	DESIGN	CONST.
Milburn Landing							
17. BOAT LAUNCH PARKING LOT REDESIGN	1	Pave, mark parking spaces, and landscape parking lot. Funds are currently available for repaving this lot. Additional funds for the markings and bioretension landscape islands including 6 native tree plantings and a sign board are recommended	N/A	$50,000	$150,000		
18. BALD CYPRESS TRAIL IMPROVEMENTS		Construct boardwalk decking on part of the trail, clear overhanging tree branches, place culverts and appropriate signage	200' linear feet		$15,000		
19.MAINTENANCE SHOP BATHROOM ADDITION	1	One unisex bathroom	8'X8'	$10,000	$30,000		
20. ADDITIONAL TIE UPS AT FISHING PEIR	3	Add a boat dock similar in size to the ADA accessible dock to make to accommodate 3 tie ups bringing the total to 5 tie ups.					$10,000
- Landscaping		Add landscaping in front of Nassawango Pavilion leading to the pier	3,200 square feet				$6,000
21. ADDITIONAL MINI-CABINS	4	Addition of 4 mini-cabins	11'x13'				$64,000
SUB-TOTAL – MILBURN LANDING				**$60,000**	**$195,000**	**$**	**$80,000**
GRAND TOTAL FOR PROPOSED IMPROVEMENTS							**$5,259,000**

Projected Annual Revenues

Of the proposed improvements those likely to generate the most revenues include the full service cabins, Marina Services building, NC building, and swimming pool complex. While the trail improvements portion of the estimated costs can be covered by National Recreation Trail Grants and the Marina Building by the Waterway Improvement Program funds, the remainder of the costs may have to come from State General Funds. Once complete the improvements at the Park could generate revenues in addition to current revenues from the following improvements:

- Renovated Marina Services Building will generate food concession and merchandise sales revenues;
- New pavilion near swimming pool complex will generate funds from pavilion rentals;
- Full service cabin rentals at Shad Landing;
- Increase in revenues from additional mini cabins at Milburn Landing;
- Increase in visitation to swimming pool with Children's Spray Area addition;
- Revenues from RV rentals at Blue Heron Camp Loop; and
- Increased revenues from youth camp improvements.

Once again it has to be noted that in order to serve the public whose attendance at the Park is expected to increase with the proposed improvements, it is highly recommended that the Park be assigned additional staff identified in this Plan to meet visitor needs and to provide the required maintenance and oversight at the Park. Further, as previously mentioned the Park has to be adequately promoted in order to increase visitation.

Table 18: Projected Annual Revenues

	Projected Annual Revenue	**Amount (in dollars)**
1.	New Marina Services Building (Food Concessionaire, Merchandise Sales and Laundromat Revenues)	20,000
2.	Proposed full service cabins (4) at Shad Landing	75,000
3.	Proposed mini-cabins (4) at Milburn Landing	40,000
4.	Proposed campsite improvements	10,000
5.	Air conditioning improvements to 4 mini-cabins (2 Shad, 2 Milburn)	4,000
6.	Pavilion rental at the Swimming Pool	1,000
7.	Additional Swimming Pool revenues resulting from improvements	5,000
	TOTAL	**155,000**

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Appendices

Appendix 1: Land Unit Acreage and Definitions

State of Maryland Land Units

Land Unit Designation	Number	Acreage
State Forest	12	136,467
Wildlife Management Area	40	105,227
State Parks	48	93,546
Chesapeake Forest Lands	1	58,334
Natural Resources Management Area	24	28,114
Natural Environment Area	7	12,120
Heritage Conservation Fund Sites	30	9,204
Fish Management Area	20	1,118
Other*	51	4,911
SUB TOTAL	**181**	**444,129**
Pending Designation	10	2,738
Fire Tower	15	44
Marine/Communications Facilities	10	119
Rail Trail	3	808
Unclassified	13	1,223
SUB TOTAL	**51**	**4,932**
GRAND TOTAL	**232**	**449,061**

Definitions of Land Unit Types

For reference in this document, the different DNR land unit designations or types are briefly discussed below:

A State Park (SP) is operated primarily for outdoor recreation purposes and open space conservation. The Maryland Park Service (MPS) is the managing entity for designated parks.

There are several different types of parks administered by the MPS:

1. Multiple-Use Parks are suitable for intensive recreational development and use, and development may include roads, parking, picnic areas, camping areas, and boat launching facilities. Examples of Multiple Use Parks include: Greenbrier State Park, Gunpowder Falls State Park, and Rocky Gap State Park.
2. General Recreation Parks accommodate light to medium recreational development and use on a smaller scale than Multiple Use Parks. Big Run, Calvert Cliffs, and Herrington Manor are classified as General Recreation Parks.
3. Waterfront Parks have a waterfront on the ocean, bay, or a lake as its principal attraction. Development often is as intensive as Multi-Use Parks. Assateague, Deep Creek Lake, and Janes Island are Waterfront Parks.
4. A Historic or Scenic Park is recognized for its historic significance or scenic interest. Several Historic or Scenic Parks include the Casselman Bridge, Fort Frederick, and Gathland.

A State Forest (SF) is managed for multiple purposes, including water quality protection, wildlife enhancement, timber, scenic or natural beauty and low-intensity

recreation. The State Forest Service manages most of the state's designated forests, including Savage River State Forest, Pocomoke River State Forest, Potomac State Forest, Garrett State Forest and Green Ridge State Forest.

A Natural Resource Management Area (NRMA) is managed by the MPS for the optimal use of the resources on the site, including wildlife management and agriculture. NRMAs do not accommodate intensive recreational uses, and they are typically used for hunting, fishing, wildlife observation and water access. The Monocacy in Frederick County and Wye Island in Queen Anne's County are examples of NRMAs.

A Natural Environment Area (NEA), also managed by the MPS, is generally 1,000 acres or more, and is an area that has significant or unique geological or ecological resources – development is generally confined to trails, interpretive facilities and limited support facilities. The Severn Run NEA and Mattawoman NEA, both located in Southern Maryland, are some of the larger NEAs found in the State.

A Wildlife Management Area (WMA), administered by the Wildlife and Heritage Service, focuses on wildlife management activities and low intensity wildlife-related recreation, including hunting and wildlife observation. Many WMAs were purchased with federal funds that restrict intensive development, and prohibit or limit certain types of outdoor recreational activities and uses. Over 40 WMAs are located throughout the State, from the 15 acre Cheltenham to Fishing Bay, which is over 28,500 acres.

A Fish Management Area (FMA), under the jurisdiction of the Fisheries Service, varies from a highly specialized fish propagation facility to a public fishing pond.

Other Classifications include:
A State Wildland is a special designation that "overlays" all or part of a state park, forest, wildlife management area or other DNR land unit. There are over 43,773 acres of Wildlands in the State that are recognized by the Maryland General Assembly as containing wilderness characteristics and otherwise outstanding and unique natural features worthy of preservation in a natural state. Maryland's Wildlands are equivalent to the National Wilderness Preservation System.

A Natural Heritage Area Conservation Purchase is not an official land unit designation, but includes properties that have been acquired specifically for the protection of identified endangered plant or animal species and significant habitats.

An Unclassified Land Unit is a property that often is under a special management or partnership arrangement with another government or nonprofit entity.

An Undesignated Land Unit usually includes newly acquired properties that are undergoing or have yet to undergo a public involvement and planning process – the recommendations in a completed Land Unit Plan determine the designation(s) of a land unit.

Appendix 2: Soils

Additional soil series found within Pocomoke River State Park in alphabetical order. The acreage of soils series has been rounded to the nearest didgit.

Askecsksy (Shad Landing 11 acres; Milburn Landing four acres)
The soils of the Askecksy series have severe limitations to recreational development. These soils do provide fair habitat for wetland and openland wildlife. Askecsky soils are very deep and are poorly drained. Permeability is rapid. These soils formed in sandy fluviomarine sediments. They can be found on low-lying uplands, in broad depressions, and in backshore areas of barrier islands of the mid Atlantic Coastal Plain. Slopes range from zero to two percent. Generally, Askecsksy soils are located adjacent to Berryland, Klej, Mullica, and Runclint soils.

Chicone (Shad Landing 13 acres)
The soils of the Chicone series have severe limitations to recreational development, but do provide good wetland wildlife habitat. These soils are very deep and very poorly drained. Permeability is moderate. These soils formed in loamy alluvial sediments overlying moderately decomposed organic deposits derived from freshwater swamp vegetation. They are located along the upland edges of wide flood plains of the mid Atlantic Coastal Plain. Slopes are zero to one percent. Chicone soils are similar to Puckum soils are are commonly adjacent to Puckum, Manahawkin, Zekiah, and Indiantown soils.

Fort Mott (Shad Landing three acres; Milburn Landing three acres)
The soils of the Fort Mott series have moderate limitations to recreational development. These soils are very deep and well drained. Permeability is moderate. These soils formed in sandy and loamy fluviomarine sediments. They are located on uplands of the mid-Atlantic Coastal Plain. Slopes range from zero to10 percent. Fort Mott soils are similar to Rosedale soils are commonly adjacent to Evesboro, Cedartown, Galestown, Rosedale, and Runclint soils.

Galestown (Shad Landing 50 acres; Milburn Landing 5 acres)
The soils of the Galestown series have moderate limitations to recreational development. They are very deep and somewhat excessively drained. Permeability is rapid. These soils formed in sandy eolian and fluviomarine sediments. They are located on uplands and ancient dunes of the mid Atlantic Coastal Plain. Elevations are generally above 20 feet. Slopes range from zero to 5 percent. Galestown soils are similar to Runclint soils and are commonly adjacent to Cedartown, Evesboro, Fort Mott, Klej, Rosedale, Runclint, and Woodstown soils.

Hammonton (Shad Landing four acres; Milburn Landing two acres)
Hammonton soils pose moderate limitations to recreational development. These soils are very deep and moderately well drained. Permeability is moderately rapid. Hammonton soils are formed in loamy fluviomarine sediments and are located on uplands of the mid-Atlantic Coastal Plain. Slopes range from zero to 5 percent. Hammonton soils are

similar to Woodstown soils and are commonly adjacent to Cedartown, Fort Mott, Klej, Galestown, Rosedale, Hurlock, Fallsington, and Sassafras soils.

Indiantown (Milburn Landing 12 acres)
The soils of the Indiantown have serious limitations to recreational development. These soils provide good habitat for wetland wildlife and are very deep and very poorly drained. Permeability is moderate. These soils formed in loamy alluvial deposits overlying sandy alluvial and marine sediments. They are located on narrow flood plains of the mid-Atlantic Coastal Plain. Slopes are zero to one percent. Indiantown soils are similar to Zekiah soils and are commonly adjacent to Zekiah, Manahawkin, Galestown, and Evesboro soils.

Kentuck (Milburn Landing 20 acres)
The soils of the Kentuck series pose severe limitations to recreational development but do provide good habitat for wetland wildlife. Kentuck soils are very deep and very poorly drained. Permeability is moderately slow. These soils formed in moderately organic silty deposits overlying loamy alluvial and marine sediments. They are in small depressions and isolated low lying areas of the mid-Atlantic Coastal Plain. Slopes range from zero to two percent. Kentuck soils are similar to Othello soils and are commonly adjacent to Elkton and Othello soils.

Klej (Shad Landing 22 acres; Milburn Landing four acres)
The soils of the Klej series pose both moderate and severe limitations to recreational development. These soils provide excellent habitat for wetland wildlife and are very deep and moderately well drained. Permeability is rapid. These soils formed in sandy eolian and fluviomarine sediments. They are on low-lying uplands and in broad depressions of the mid-Atlantic Coastal Plain. Slopes range from zero to 5 percent. Klej soils are similar to Runclint soils and commonly are adjacent to Askecksy, Cedartown, Evesboro, Rosedale, and Runclint soils.

Mannington (Shad Landing one acre)
The soils of the Mannington series pose severe limitations to recreational development. They are very deep and very poorly drained. Permeability is moderate. Mannington soils provide good habitat for wetland wildlife. These soils formed in silty alluvial sediments overlying highly decomposed organic deposits derived from freshwater swamp vegetation. They are located on tidal mud flats of the mid-Atlantic Coastal Plain. Slopes are zero to one percent. Mannington soils are similar to Nanticoke soisl and are commonly adjacent to Nanticoke, Manahawkin, and Puckum soils.

Nassawango (Milburn Landing 27 acres)
The soils of the Nassawango series pose moderate limitations to recreational development. They are very deep and well drained. Permeability is moderate. Nassawango soils provide good habitat for both openland and woodland wildlife. These soils formed in silty eolian and alluvial deposits overlying sandy fluviomarine sediments. They are located on uplands of the mid-Atlantic Coastal Plain. Elevations are generally

less than 25 feet. Slopes range from zero to 5 percent. Nassawango soils are similar to Matapeake soils and are commonly adjacent to Matapeake, Mattapex, and Othello soils.

Othello (Milburn Landing 17 acres)
These soils pose severe limitations to recreational development, but do provide good habitat for wetland wildlife. The soils of the Othello series are very deep and poorly drained. Permeability is moderately slow. These soils formed in silty eolian or alluvial sediments overly sandy fluviomarine sediments. They are on broad lowland flats of the mid Atlantic Coastal Plain. Slopes range from zero to two percent. Othello soils are similar to Elkton soils and are commonly adjacent to Elkton, Kentuck, and Mattapex soils.

Rosedale (Shad Landing19 acres)
The soils of the Rosedale series pose moderate limitations to recreational development. They are very deep and well drained. Permeability is moderate. These soils formed in sandy eolian and loamy fluviomarine sediments. They are located on uplands and ancient dunes of the mid-Atlantic Coastal Plain. Elveations are generally below 20 feet. Slopes range from zero to 5 percent. Rosedale soils are similar to Fort Mott soils and are commonly adjacent to Cedartown, Hambrook, Sassafras, and Woodstown soils.

Runclint (Shad Landing 16 acres; Milburn Landing 6 acres)
Runclint soils pose moderate limitations to recreational development. The soils of the Runclint series are very deep and well drained. Permeability is rapid. These soils formed in sandy eolian and fluviomarine sediments. They are located on uplands of the mid-Atlantic Coastal Plain. Slopes range from zero to 10 percent. Runclint soils are similar to Evesboro soils and are commonly adjacent to Evesboro, Klej, Cedartown, Rosedale, and Fort Mott soils.

Sassafras (Milburn Landing 22 acres)
The soils of the Sassafras series pose moderate limitations to recreational development and provide good habitat for openland and woodland wildlife. These soils are very deep and well drained. Permeability is moderate. These soils formed in loamy fluviomarine sediments. They are located on uplands of the mid-Atlantic Coastal Plain. Slopes range from zero to 10 percent. Sassafras soils are similar to Fort Mott soils and are commonly adjacent to Evesboro, Fort Mott, Galestown, Hambrook, and Woodstown soils.

Udorthents (Shad Landing 15 acres)
Udorthents soil material has been moved, tilled in, or worked by machinery. Most of the soil areas have been reshaped or leveled. These soils are primarily urban with many of these soils having been paved over with asphalt, concrete, or other impervious surfaces.

Zekiah (Shad Landing 14 acres; Milburn Landing 10 acres)
The soils of the Zekiah series pose severe limitations to recreational development, but do provide good habitat for wetland wildlife. These soils are very deep and poorly drained. Permeability is moderate. These soils formed in loamy alluvial deposits overlying sandy alluvial and marine sediments. They are located on thin flood plains of the mid-Atlantic

Coastal Plain. Slopes are zero to one percent. Zekiah soils are similar to Indiantown soils are commonly adjacent to Indiantown, Manahawkin, Puckum, Galestown, and Evesboro soils.

Appendix 3: Vegetation: Trees, Shrubs, and Herbaceous Vegetation

Plants of Pocomoke River State Park extracted from the Pocomoke State Forest Plan, The Pocomoke Scenic River Plan, Harrison, 2004 and from personal communication with Sam Bennett, Maryland Forest and Park Service.

	Common Name	**Scientific Name**
	Trees	
1	Red maple	*Acer rubrum*
2	River birch	*Betula nigra*
3	American hornbeam	*Carpinus caroliniana*
4	Mockernut hickory	*Carya alba*
5	Pignut hickory	*Carya alba*
6	Atlantic white cedar	*Chamaecyparis thyoides*
7	Flowering dogwood	*Cornus florida*
8	Persimmon	*Diospyros virginiana*
9	American beech	*Fagus grandifolia*
10	Green ash	*Fraxinous pennslyvanica*
11	Pumpkin ash	*Fraxinous profunda*
12	Witch hazel	*Hamamelis virginiana*
13	American holly	*Ilex opaca*
14	Eastern redcedar	*Juniperus virginiana*
15	Yellow poplar	*Liriodendron tulipifera*
16	Sweetgum	*Liquidambar styraciflua*
17	Sweetbay magnolia	*Magnolia virgniana*
18	Black gum	*Nyssa sylvatica*
19	Swamp tupelo	*Nyssa tupelo*
20	Red bay	*Persea borbonia*
21	Shortleaf pine	*Pinus echinata*
22	Pond pine	*Pinus serotina*
23	Loblolly pine	*Pinus taeda*
24	Virginia pine	*Pinus virginiana*
25	Swamp cottonwood	*Populus heterophylla*
26	Black cherry	*Prunus serotina*
27	White oak	*Quercus alba*
28	Swamp white oak	*Quercus bicolor*
29	Southern red oak	*Quercus falcata*
30	Black jack oak	*Quercus marilandica*
31	Swamp chesnut oak	*Quercus michauxii*
32	Willow oak	*Quercus phellos*
33	Northern red oak	*Quercus rubra*
34	Post oak	*Quercus stellata*
35	Black oak	*Quercus velutina*
36	Black locust	*Robinia pseudoacacia*

37	Sassafras	*Sassafras albidum*
38	Bald cypress	*Taxodium distichum*
	Shrubs	
1	Highbush Blueberry	*Vaccinium corymbosum*
2	Mountain Laurel	*Kalmia latifolia*
3	Flowering Dogwood	*Cornus florida*
4	Laurel Leaved Greenbrier	*Smilax laurifolia*
5	Smooth Alder	*Alnus serrulata*
6	Button bush	*Cephalanthus occidentalis*
7	Fringe tree	*Chionanthus virginicus*
8	Sweet pepperbush	*Clethra alnifolia*
9	Strawberry bush	*Euonymus americanus*
10	Black huckleberry	*Gaylussacia baccata*
11	Black alder	*Ilex verticillata*
12	Wax-myrtle	*Morella cerifera*
13	Bayberry	*Myrica pensylvanica*
14	Swamp azalea	*Rhododendron viscosum*
15	Dwarf azalea	*Rhododendron atlanticum*
16	Smooth sumac	*Rhus glabra*
17	Glaucous greenbrier	*Smilax glauca*
18	Viburnum	*Viburnum dentatum*
19	Red-berried greenbrier	*Smilax walteri*
20	Common greenbrier	*Smilax rotundifolia*
21	Black willow	*Salix nigra*
22	Winterberry	*Ilex verticillata*
23	Inkberry	*Ilex glabra*
24	Serviceberry	*Amelanchier spp.*
	Herbaceous Vegetation*	
1	Lowland loosestrife	*Lysimachia hybrida*
2	Sacciolepsis	*Sacciolepsis striata*
3	Hercule's club	*Aralia spinosa*
4	Crossvine	*Bignonia capreolata*
5	Trumpet creeper	*Campsis radicans*
6	Virginia creeper	*Parthenocissus quinquefolia*
7	Poison oak	*Toxicodendron diversilobum*
8	Swamp rose	*Rosa palustris*
9	Poison ivy	*Toxicodendron radicans*
10	Jewel weed/Spotted touch me not	*Impatiens capensis*
11	Green Arrow Arum	*Peltandra virginica*
12	Halberdleaf tearthumb	*Polygonum arifolium*
13	Harlequin blueflag	*Iris versicolor*
14	Lizard's tail	*Saururus cernuus*
15	Jack in the pulpit	*Arisaema triphyllum*
16	Marsh blue violet	*Viola cucullata*
17	Stout wood reed	*Cinna arundinacea*

18	Water-hemlock	*Cicuta maculata*
19	Small spike false nettle	*Boehmeria cylindrical*
20	Weak stellate sedge	*Carex seorsa*
21	Bromelike sedge	*Carex bromoides*
22	Upright sedge	*Carex stricta*
23	Royal Fern	*Osmunda regalis var. spectabilis*
24	Cinnamon Fern	*Osmunda cinnamomea*
25	Chain Fern	*Woodwardia areolata*
26	Marsh Fern	*Thelypteris palustris*
27	Slender woodoats	*Chasmanthium laxum*
28	Bitter panicgrass	*Panicum amarum*
29	Hyssopleaf throughwort	*Eupatorium hyssopifolium*
30	Smooth elephants-foot	*Elephantopus nudatus*

*includes all non-woody plant species

Appendix 4: Birds

Birds of Pocomoke River State Park compiled by Lynn Davidson, Wildlife and Heritage Service-Heritage Program.

The swamps, upland forests, and other habitats within and around Pocomoke River State Forest support numerous bird species. While many of these are residents that occur in the area all year, more are migratory species that are only found there during certain times of the year. The exact number of species that have been found on, near, or flying over the property is unknown, however an approximate species list has been compiled based on the likelihood of detection: species within Category 1 are most likely to be found during the appropriate time of year, within the appropriate habitat or perhaps migrating past the area; species within Category 2 are less likely to be found and most would be detected very infrequently or only as they fly past the area during migration, especially species such as shorebirds and waterfowl that have limited habitat available within the area.

	Common Name	Scientific Name	Abundance
	Loons and Grebes		
1	Common Loon	*Gavia immer*	1
2	Horned Grebe	*Prodiceps auritus*	2
3	Pied-billed Grebe	*Podilymbus podiceps*	2
4	Red throated Loon	*Gavia stella*	2
	Gannet-Pelicans-Cormorants		
5	Double-crested Cormorant	*Phalacrocorax auritus*	1
	Bitterns-Herons-Ibises		
6	American Bittern	*Botaurus lentiginosus*	2
7	Least Bittern	*Ixobrychus exilis*	2
8	Great Blue Heron	*Ardea herodias*	1
9	Great Egret	*Ardea alba*	1
10	Snowy Egret	*Egretta thula*	1
11	Little Blue Heron	*Egretta caerulea*	1
12	Tri-colored Heron	*Egretta tricolor*	1
13	Cattle Egret	*Bubulcus ibis*	2
14	Green Heron	*Butorides virescens*	1
15	Black crowned Night Heron	*Nycticorax nycticorax*	1
16	Yellow crowned Night Heron	*Nyctanassa violacea*	2
17	Glossy Ibis	*Plegadis falcinellus*	1
	Swans Geese Ducks		
18	Tundra Swan	*Cygnus columbianus*	1
19	Mute Swan	*Cygnus olor*	2
20	Greater White fronted Goose	*Anser albifrons*	2
21	Snow Goose	*Chen hyperborean*	1
22	Ross's Goose	*Chen rossii*	2
23	Canada Goose	*Branta canadensis*	1
24	Green-winged Teal	*Anas carolinensis*	2
25	American Black Duck	*Anas rubripes*	1

26	Mallard	*Anas platyrhynchos*	1
27	Northern Pintail	*Anas acuta*	2
28	Blue-Winged Teal	*Anas discors*	2
29	Northern Shoveler	*Spatula clypeata*	2
30	Gadwall	*Anas strepera*	2
31	American Wigeon	*Anas americana*	2
32	Canvasback	*Aythya valisineria*	2
33	Redhead	*Aythya americana*	2
34	Ring-necked Duck	*Aythya collaris*	2
35	Greater Scaup	*Aythya marila*	2
36	Lesser Scaup	*Aythya affinis*	2
37	Oldsquaw	*Clangula hyemalis*	2
38	Black Scoter	*Melanitta nigra*	2
39	Surf Scoter	*Melanitta perspicillata*	2
40	White winged Scoter	*Melanitta deglandi*	2
41	Common Goldeneye	*Bucephala clangula*	2
42	Bufflehead	*Bucephala albeola*	2
43	Hooded Merganser	*Lophodytes cucullatus*	2
44	Red-breasted Merganser	*Mergus serrator*	2
45	Ruddy Duck	*Oxyura jamaicensis*	2
	Vultures Hawks Falcons		
46	Black Vulture	*Corogyps atratus*	1
47	Turkey Vulture	*Cathartes aura*	1
48	Osprey	*Pandion haliaetus*	1
49	Bald Eagle	*Haliaeetus leucocephalus*	1
50	Northern Harrier	*Circus cyaneus*	1
51	Sharp shinned Hawk	*Accipiter striatus*	1
52	Cooper's Hawk	*Accipiter cooperii*	1
53	Red shouldered Hawk	*Buteo lineatus*	1
54	Broad Winged Hawk	*Buteo platypterus*	2
55	Red-tailed Hawk	*Buteo jamaicensis*	1
56	Rough legged Hawk	*Buteo lagopus*	2
57	Golden Eagle	*Aquila chrysaetos*	2
58	American Kestrel	*Falco sparverius*	1
59	Merlin	*Falco columbarius*	1
60	Peregrine Falcon	*Falco peregrinus*	2
	Turkey Quail Rails Coot		
61	Wild Turkey	*Meleagris gallopavo*	1
62	Northern Bobwhite	*Colinus virginianus*	1
63	Clapper Rail	*Rallus longirostris*	2
64	King Rail	*Rallus elegans*	2
65	Virginia Rail	*Rallus limicola*	2
66	Sora	*Porzana Carolina*	2
67	Common Moorhen	*Gallinula chloropus*	2
68	American Coot	*Fulica Americana*	2

	Plovers Sandpipers		
69	Black bellied Plover	*Pluvialis squatarola*	2
70	American Golden Plover	*Pluvialis dominica*	2
71	Semipalmated Plover	*Charadrius semipalmatus*	2
72	Killdeer	*Charadrius vociferous*	1
73	Greater yellowlegs	*Tringa melanoleuca*	2
74	Lesser yellowlegs	*Tringa flavipes*	2
75	Solitary Sandpiper	*Tringa solitaria*	2
76	Spotted Sandpiper	*Actitis macularia*	1
77	Upland Sandpiper	*Bartramia longicauda*	2
78	Whimbrel	*Numenius phaeopus*	2
79	Semipalmated Sandpiper	*Calidris pusillus*	2
80	Western Sandpiper	*Calidris mauri*	2
81	Least Sandpiper	*Calidris minutilla*	2
82	Pectoral Sandpiper	*Calidris melantos*	2
83	Dunlin	*Calidris alpine*	2
84	Short billed Dowitcher	*Limnodromus griseus*	2
85	Wilson's Snipe	*Capella gallinago*	1
86	American Woodcock	*Scolopax minor*	1
	Jaggers Gulls Terns Auks		
87	Laughing Gull	*Larus atricilla*	1
88	Bonaparte's Gull	*Larus philadelphia*	2
89	Ring-billed Gull	*Larus delawarensis*	1
90	Herring Gull	*Larus argentatus*	1
91	Iceland Gull	*Larus glaucoides*	2
92	Lesser Black-backed Gull	*Larus fuscuc*	2
93	Glaucous Gull	*Larus hyperboreus*	2
94	Great Black-backed Gull	*Larus marinus*	1
95	Gull-billed Tern	*Sterna nilotica*	2
96	Caspian Tern	*Sterna caspia*	2
97	Royal Tern	*Sterna maxima*	2
98	Common Tern	*Sterna hirundo*	2
99	Forster's Tern	*Sterna fosteri*	1
100	Least Tern	*Sterna antillarum*	2
101	Black Tern	*Chlidonias niger*	2
	Doves Cuckoos Owls Swifts Hummingbirds		
102	Rock Dove	*Columba livia*	1
103	Mourning Dove	*Zenaida macroura*	1
104	Black billed Cuckoo	*Coccyzuz erythrothalmus*	2
105	Yellow-billed Cuckoo	*Coccyzus americanus*	1
106	Barn Owl	*Tyto alba*	2
107	Eastern Screech Owl	*Otus asio*	1
108	Great Horned Owl	*Bubo virginianus*	1
109	Long-eared Owl	*Asio otus*	2

110	Short-eared Owl	*Asio flammeuns*	2
111	Northern Saw-whet Owl	*Aegolius acadicus*	2
112	Common Nighthawk	*Chordeiles minor*	1
113	Whip-poor will	*Caprimulgus vociferous*	1
114	Chuck will's widow	*Caprimulgus carolinensis*	1
115	Chimney Swift	*Chaetura pelagica*	1
116	Ruby Throated Hummingbird	*Archilochus colubris*	1
117	Belted Kingfisher	*Ceryle alcyon*	1
	Woodpeckers-Flycatchers		
119	Red-headed Woodpecker	*Melanerpes erythrocephalus*	1
120	Red-bellied Woodpecker	*Melanerpes carolinus*	1
121	Yellow-bellied sapsucker	*Sphyrapicus varius*	1
122	Downy Woodpecker	*Picoides pubescens*	1
123	Hairy Woodpecker	*Picoides villosus*	1
124	Pileated Woodpecker	*Dryocopus pileatus*	1
125	Northern Flicker	*Colaptes auratus*	1
126	Olive-sided Flycatcher	*Contopus cooperi*	2
127	Eastern Wood Pewee	*Contopus sordidulus*	1
128	Yellow-bellied Flycatcher	*Empidonax flaviventris*	2
129	Acadian Flycatcher	*Empidonax virescens*	1
130	Willow Flycatcher	*Empidonax traillii*	2
131	Least Flycatcher	*Empidonax minimus*	2
132	Eastern Phoebe	*Sayornis phoebe*	1
133	Great Crested Flycatcher	*Myiarchus crinitus*	1
134	Eastern Kingbird	*Tyrannus tyrannus*	1
	Larks-Swallows-Jays-Crows		
135	Horned Lark	*Eremphila alpestris*	1
136	Purple Martin	*Progne subis*	1
137	Tree Swallow	*Tachycineta bicolor*	1
138	Northern Rough-Winged Swallow	*Stelgidopteryx serripennis*	1
139	Bank Swallow	*Riparia riparia*	1
140	Cliff Swallow	*Petrochelidon pyrrhonota*	2
141	Barn Swallow	*Hirundo rustica*	1
142	Blue Jay	*Cyanocitta cristata*	1
143	American Crow	*Corvus brachyrhynshos*	1
144	Fish Crow	*Corvus ossifragus*	1
	Titmice-Nuthatches-Wrens		
145	Carolina Chickadee	*Poecile carolinensis*	1
146	Tufted Titmouse	*Baeolophus bicolor*	1
147	Red-breasted Nuthatch	*Sitta canadensis*	2
148	White Breasted Nuthatch	*Sitta carolinensis*	1
149	Brown Headed Nuthatch	*Sitta pusilla*	1
150	Brown Creeper	*Certhia americana*	1
151	Carolina Wren	*Thryothorus ludovicianus*	1
152	House Wren	*Troglodytes aedon*	1

153	Winter Wren	*Troglodytes troglodytes*	1
154	March Wren	*Cistothorus palustris*	2
	Kinglets Thrushes Thrashers		
155	Golden crowned Kinglet	*Regulus satrapa*	1
156	Ruby-crowned Kinglet	*Regulus calendula*	1
157	Blue-gray Gnatcathcer	*Polioptila caerulea*	1
158	Eastern Bluebird	*Sialis sialis*	1
159	Veery	*Catharus fuscescens*	1
160	Gray cheeked Thrush	*Catharus minimus*	2
161	Swainson's Thrush	*Catharus ustulatus*	1
162	Hermit Thrush	*Catharus guttatus*	1
163	Wood Thrush	*Hylocichla mustelina*	1
164	American Robin	*Turdus migratorius*	1
165	Gray Catbird	*Dumetella carolinensis*	1
166	Northern Mockingbird	*Minus polyglottos*	1
167	Brown Thrasher	*Toxostoma rufum*	1
	Waxwings Shrikes Starling		
168	Water Pipit	*Anthus spinoletta*	2
169	Cedar Waxwing	*Bombycilla garrulus*	1
170	European Starling	*Sturnus vulgaris*	1
	Viroes-Wood Warblers		
171	White-eyed Vireo	*Vireo griseus*	1
172	Blue-headed Vireo	*Vireo solitarius*	1
173	Yellow-throated Vireo	*Vireo flavifrons*	1
174	Warbling Vireo	*Vireo gilvus*	2
175	Philadelphia Vireo	*Vireo philadelphicus*	2
176	Red-eyed Vireo	*Vireo olivaceus*	1
177	Blue-winged Warbler	*Vermivora pinus*	1
178	Golden winged Warbler	*Vermivora chrysoptera*	2
179	Tennessee Warbler	*Vermivora chrysoptera*	2
180	Orange-crowned Warbler	*Vermivora celata*	2
181	Nashville Warbler	*Vermivora ruficapilla*	2
182	Northern Parula	*Parula americana*	1
183	Yellow Warbler	*Dendroica petechia*	1
184	Chestnut-sided Warbler	*Dendroica pensylvanica*	1
185	Magnolia Warbler	*Dendroica magnolia*	1
186	Cape May Warbler	*Dendroica tigrina*	1
187	Black-throated Blue Warbler	*Dendroica caerulescens*	1
188	Yellow-rumped Warbler	*Dendroica coronata*	1
189	Black-throated Green Warbler	*Dendroica nigrescens*	1
190	Blackburnian Warbler	*Dendroica fusca*	1
191	Yellow Throated Warbler	*Dendroica dominica*	1
192	Pine Warbler	*Dendroica pinus*	1
193	Prairie Warbler	*Dendroica discolor*	1
194	Palm Warbler	*Dendroica palmarum*	1

195	Bay Breasted Warbler	*Dendroica castanea*	2
196	Blackpoll Warbler	*Dendroica striata*	1
197	Cerulean Warbler	*Dendroica cerulea*	2
198	Black and White Warbler	*Mniotilta varia*	1
199	American Redstart	*Setophaga ruticilla*	1
200	Prothonotary Warbler	*Protonotaria citrea*	1
201	Worm-eating Warbler	*Helmitheros vermivorus*	1
202	Swainson's Warbler	*Limnothlypis swainsonii*	2
203	Ovenbird	*Seiurus aurocapillus*	1
204	Northern Waterthrush	*Seiurus noveboracensis*	1
205	Louisiana Waterthrush	*Seiurus motacilla*	1
206	Kentucky Warbler	*Oporornis formosus*	1
207	Connecticut Warbler	*Oporornis agilis*	2
208	Mourning Warbler	*Oporornis philadelphia*	2
209	Common Yellowthroat	*Geothlypis trichas*	1
210	Hooded Warbler	*Wilsonia citrina*	1
211	Wilson's Warbler	*Wilsonia pusilla*	2
212	Canada Warbler	*Wilsonia canadensis*	1
213	Yellow breasted Chat	*Icteria virens*	1
	Tanagers Sparrows		
214	Summer Tanager	*Piranga rubra*	1
215	Scarlet Tanager	*Piranga olivacea*	1
216	Northern Cardinal	*Cardinalis cardinalis*	1
217	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	1
218	Blue Grosbeak	*Guiraca caerulea*	1
219	Indigo Bunting	*Passerina cyanea*	1
220	Dickcissel	*Spiza americana*	2
221	Eastern Towhee	*Pipilo erythrophthalmus*	1
222	Chipping Sparrow	*Spizella passerina*	1
223	Field Sparrow	*Spizella pusilla*	1
224	Vesper Sparrow	*Pooecetes gramineus*	2
225	Savannah Sparrow	*Passerculus sandwichensis*	1
226	Grasshopper Sparrow	*Ammodramus savannarum*	2
227	Seaside Sparrow	*Ammodramus maritimus*	2
228	Fox Sparrow	*Passerella iliaca*	1
229	Song Sparrow	*Melospiza melodia*	1
230	Lincoln's Sparrow	*Melospiza lincolnii*	2
231	Swamp's Sparrow	*Melospiza georgiana*	1
232	White-throated Sparrow	*Zonotrichia albicollis*	1
233	White-crowned Sparrow	*Zonotrichia leucophrys*	2
234	Dark eyed Junco	*Junco hyemalis*	1
	Blackbirds-Finches		
235	Bobolink	*Dolichonyx oryzivorus*	2
236	Red-winged Blackbird	*Agelaius phoeniceus*	1
237	Eastern Meadowlark	*Sturnella magna*	2

238	Rusty Blackbird	*Euphagus carolinus*	2
239	Boat-tailed Grackle	*Quiscalus major*	2
240	Common Grackle	*Quiscalus quiscula*	1
241	Brown-headed Cowbird	*Molothrus ater*	1
242	Orchard Oriole	*Icterus spurius*	1
243	Baltimore Oriole	*Icterus galbula*	1
244	Purple Finch	*Carpodacus purpureus*	2
245	House Finch	*Carpodacus mexicanus*	1
246	Pine Siskin	*Carduelis pinus*	2
247	American Goldfinch	*Carduelis tristis*	1
248	Evening Grosbeak	*Coccothraustes vespertinus*	2
249	House Sparrow	*Passer domesticus*	1

* An abundance of 1 indicates commonly found bird species. There are 145 bird species with an abundance of 1

** An abundance of 2 indicates more uncommonly found bird species. There are 104 bird species with an abundance of 2.

Appendix 5: Mammals

Mammals of Pocomoke River State Park extracted From Mammals of Maryland by John L. Paradiso. Assistance from Arnold Norden, DNR.

	Common Name	**Scientific Name**
1	Beaver	*Castor canadensis*
2	Big Brown Bat	*Eptesicus fuscus*
3	Coyote	*Canis latrans*
4	Delmarva Fox Squirrel*	*Sciurus niger cinereus*
5	Eastern Chipmunk	*Tamias striatus fisheri*
6	Eastern Cottontail Rabbit	*Sylvilagus floridanus*
7	Eastern Mole	*Scalopus aquaticus*
8	Evening Bat	*Nycticeius humeralis*
9	Gray Fox	*Urocyon cinereoargenteus*
10	Gray Squirrel	*Sciurus carolinensis*
11	Hoary Bat	*Lasiurus cinereus*
12	House Mouse	*Mus musculus*
13	Keen's Myotis	*Myotis keenii*
14	Least Shrew	*Cryptotis parva*
15	Little Brown Myotis	*Myotis lucifugus*
16	Long-tailed weasel	*Mustela frenata*
17	Marsh Rice Rat	*Oryzomys palustris*
18	Masked Shrew	*Sorex cinereus*
19	Meadow Jumping Mouse	*Zapus hudsonius*
20	Meadow Vole	*Microtus pennsylvanicus*
21	Mink	*Mustela vison*
22	Muskrat	*Ondatra zibethicus*
23	Opossum	*Didelphis marsupialis*
24	Pine Vole	*Pitymys pinetorum*
25	Red Bat	*Lasiurus borealis*
26	Red Fox	*Vulpes vulpes*
27	River Otter	*Lontra canadensis*
28	Short-tailed Shrew	*Blarina brevicauda*
29	Southern Bog lemming	*Synaptomys cooperi*
30	Southern Flying Squirrel	*Glaucomys volans*
31	Star-nosed Mole	*Condylura cristata*
32	Striped Skunk	*Mephitis mephitis*
33	White-footed Mouse	*Peromyscus leucopus*
34	Whitetail Deer	*Odocoileus virginianus*

* Protected Species. Rare possibility of occurrence within Pocomoke River State Park

Appendix 6: Amphibians and Reptiles

Amphibians and Reptiles of Pocomoke River State Park extracted from Amphibians and Reptiles of Delmarva by James F. White and Amy Wendt White. Assistance from Arnold Norden, DNR.

	Common Name	**Scientific Name**
	Reptiles	
1	Eastern snapping turtle	*Chelydra serpentina*
2	Eastern painted turtle	*Chrysemys picta*
3	Eastern box turtle	*Terrapene carolina*
4	Spotted turtle	*Clemmys guttata*
5	Eastern Mud Turtle	*Kinosternon subrubrum*
6	Northern Red-bellied Cooter (turtle)	*Pseudemys rubriventris*
7	Eastern musk turtle	*Sternotherus odoratus*
8	Northern fence lizard	*Sceloporus undulates*
9	Five line skink	*Eumeces fasciatus*
10	Broadhead Skink	*Eumeces laticeps*
11	Ground Skink	*Scincella lateralis*
12	Eastern worm snake	*Carphophis amoenus*
13	Northern Black Racer	*Coluber constrictor*
14	Southern Ringneck snake	*Diadophis punctatus*
15	Black Rat Snake	*Elaphe obsolete*
16	Milk Snake	*Lampropeltis triangulum*
17	Eastern Hognose Snake	*Heterodon platirhinos*
18	Eastern King snake	*Lampropeltis getulus*
19	Northern Water Snake	*Nerodia sipedon*
20	Eastern Ribbon Snake	*Thamnophis sauritus*
21	Rough Green Snake	*Opheodrys aestivus*
22	Northern Brown Snake	*Storeria dekayi*
23	Northern Redbellied Snake	*Storeria occipitomaculata*
24	Eastern Garter Snake	*Thamnophis sirtalis*
25	Eastern Earth Snake	*Virginia valeriae*
26	Copperhead*	*Agkistrodon contortrix*
	Amphibians	
1	Four toed salamander	*Hemidactylium scutatum*
2	Redback salamander	*Plethodon cinereus*
3	Marbled salamander	*Ambystoma opacum*
4	Eastern mud salamander	*Pseudotriton montanus*
5	Eastern Spadefoot (Frog)	*Scaphiopus holbrookii*
6	Eastern American Toad	*Bufo americanus*
7	Fowler's toad	*Bufo fowleri*
8	Northern Spring Peeper	*Pseudacris crucifer*
9	Gray Tree Frog	*Hyla versicolor*
10	Cope's Gray Tree Frog	*Hyla chrysoscelis*

11	Green Tree Frog	*Hyla cinerea*
12	Carpenter Frog**	*Rana virgatipes*
13	New Jersey Chorus Frog	*Pseudacris feriarum*
14	Green Frog	*Rana clamitans*
15	Northern Cricket Frog	*Acris crepitans*
16	Southern Leopard Frog	*Rana sphenocephala*
17	Wood Frog	*Rana sylvatica*
18	Pickerel Frog	*Rana palustris*

* Only poisonous species in the area.
** Rare. Classified by the State as "in need of conservation."

Appendix 7: Fish

Fish of Pocomoke River State Park compiled by Rick Schaefer, Fisheries Service DNR

	Common Name	**Scientific Name**
1	American Shad*	*Alosa sapidissima*
2	American Eel	*Anguilla rostrata*
3	Banded Sunfish	*Enneacanthus obesus*
4	Black Crappie	*Pomoxis nigromaculatus*
5	Blueback Herring*	*Alosa aestivalis*
6	Bluegill	*Lepomis macrochirus*
7	Bluespotted Sunfish	*Enneacanthus gloriosus*
8	Brown Bullhead	*Ameiurus nebulosus*
9	Chain Pickerel**	*Esox niger*
10	Channel Catfish	*Ictalurus punctatus*
11	Common Carp	*Cyprinus carpio*
12	Creek Chubsucker	*Erimyzon oblongus*
13	Eastern Mosquitofish	*Gambisia holbrooki*
14	Eastern Mudminnow	*Umbra pygmaea*
15	Eastern Silvery Minnow	*Hybognathus regius*
16	Glassy Darter*	*Etheostoma vitreum*
17	Golden Shiner	*Notemigonus crysoleucas*
18	Green Sunfish	*Lepomis cyanellus*
19	Hickory Shad*	*Alosa mediocris*
20	Largemouth Bass**	*Micropterus salmoides*
21	Least Brook Lamprey	*Lampertra aepyptera*
22	Longnose Gar	*Lepisosteus osseus*
23	Margined Madtom	*Noturus insignis*
24	Mud Sunfish*	*Acantharchus pomotis*
25	Mummichog	*Fundulus heteroclitus*
26	Pirate Perch	*Aphredoderus sayanus*
27	Pumpkinseed	*Lepomis gibbosus*
28	Redbreast Sunfish	*Lepomis auritus*
29	Redfin Pickerel	*Esox americanus*
30	Satinfin Shiner	*Notropis analostana*
31	Shield Darter	*Percina peltata*
32	Striped Bass	*Morone saxatilis*
33	Swallowtail Shiner	*Notropis procne*
34	Swamp Darter	*Etheostoma fusiforme*
35	Tadpole Madtom	*Noturus insignis*
36	Tessellated Darter	*Etheostoma olmstedi*
37	White Catfish	*Ameiurus catus*

38	White Perch	*Morone Americana*
39	Yellow Bullhead	*Ameiurus natalis*
40	Yellow Perch	*Perca flavescens*

* Uncommon or rarely encountered fish species
** Gamefish (species commonly fished for sport)

Appendix 8: Fiscal Years Revenues and Expenditures

Pocomoke River State Park – Revenues and Expenditures for FY 2002

Revenues – FY 2002	
ITEM	**AMOUNT (in dollars)**
Park Facilities Use	15,678
Camping	61,030
Full-service Cabins and Cots	10,001
Camper Cabins	0
Pavilions/Shelters	220
Marina Boat Facility	0
Naturalist	1,468
Concessions Commission	81
Shortages and Overages	26
Miscellaneous*	404
TOTAL	**88,908**
Expenditures – FY 2002* **	
ITEM	**AMOUNT (in dollars)**
Technical and Special Fees	102,984
Communications	6,605
Fuel and Utilities	24,511
Motor Vehicle Operations	18,180
Contractual Services	11,254
Supplies and Materials	16,232
Equipment – Replacement	9,704
Equipment – Additional	1,800
Fixed Charges	0
TOTAL**	**191,270**
GRAND TOTAL (revenue minus expenditure)	**-$102,362**

* Includes rights of way

**Does not include "Salaries and Wages" that is taken out of the General Funds and is in the amount of $758,388

Pocomoke River State Park – Revenues and Expenditures FY 2003

Revenues – FY 2003	
ITEM	**AMOUNT (in dollars)**
Park Facilities Use	26,556
Camping	174,203
Full-service Cabins and Cots	22,481
Camper Cabins	43,021
Pavilions/Shelters	12,065
Marina Boat Facility	0
Naturalist	0
Concessions Commission	335
Shortages and Overages	250
Miscellaneous*	9
TOTAL	**278,920**
Expenditures – FY 2003* **	
ITEM	**AMOUNT (in dollars)**
Technical and Special Fees	127,288
Communications	6,662
Fuel and Utilities	32,601
Motor Vehicle Operations	79,762
Contractual Services	20,979
Supplies and Materials	6,566
Equipment – Replacement	14,980
Equipment – Additional	0
Fixed Charges	0
TOTAL**	**288,838**
GRAND TOTAL (revenue minus expenditure)	**-$9,918**

* Includes participation in cost.

***Does not include "Salaries and Wages" that is taken out of the General Funds and is in the amount of $900,227

Pocomoke River State Park – Revenues and Expenditures FY 2004

Revenues – FY 2004	
ITEM	**AMOUNT (in dollars)**
Park Facilities Use	36,310
Camping	191,925
Full-service Cabins and Cots	15,298
Camper Cabins	36,515
Pavilions/Shelters	14,655
Marina Boat Facility	299
Naturalist	0
Concessions Commission	273
Shortages and Overages	1
Miscellaneous*	35
TOTAL	**295,311**

Expenditures – FY 2004	
ITEM	**AMOUNT (in dollars)**
Technical and Special Fees	109,191
Communications	7,891
Fuel and Utilities	37,049
Motor Vehicle Operations	52,039
Contractual Services	10,746
Supplies and Materials	36,059
Equipment – Replacement	78
Equipment – Additional	3,637
Fixed Charges	115
TOTAL**	**256,805**
GRAND TOTAL (revenue minus expenditure)	**$38,506**

** Includes returned check charge*

***Does not include "Salaries and Wages" that is taken out of the General Funds and is in the amount of $816,458*

Pocomoke River State Park – Revenues and Expenditures FY 2005

Revenues – FY 2005	
ITEM	**AMOUNT (in dollars)**
Park Facilities Use	26,273
Camping	197,645
Full-service Cabins and Cots	9,620
Camper Cabins	53,210
Pavilions/Shelters	11,260
Marina Boat Facility	2,527
Naturalist	0
Concessions Commission	1,294
Shortages and Overages	3
Miscellaneous*	1,138
TOTAL	**302,970**
Expenditures – FY 2005	
ITEM	**AMOUNT (in dollars)**
Technical and Special Fees	115,717
Communications	5,901
Fuel and Utilities	38,495
Motor Vehicle Operations	17,021
Contractual Services	19,020
Supplies and Materials	45,412
Equipment – Replacement	10,924
Equipment – Additional	0
Fixed Charges	0
TOTAL**	**252,490**
GRAND TOTAL (revenue minus expenditure)	**$50,480**

* Includes camping supplies

**Does not include "Salaries and Wages" that is taken out of the General Funds and is in the amount of $636,182

Pocomoke River State Park
Land Unit Plan