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# DELAWARE AND RARITAN CANAL STATE PARK

Master Plan

Second Edition



New Jersey Department of Environmental Protection

James J. Florio  
*Governor*

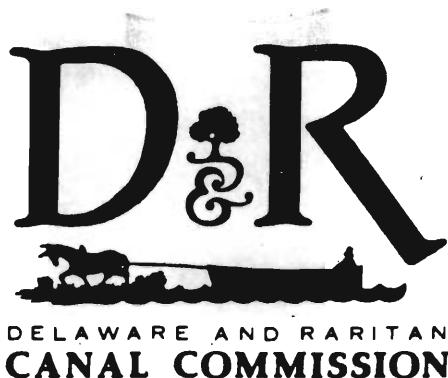
Judith A. Yaskin  
*Commissioner*

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Master Plan

Second Edition

*May, 1989*



BENJAMIN B. KIRKLAND, *Chairman*  
MARTIN D. JESSEN, *Vice-Chairman*  
DONALD B. JONES, *Treasurer*  
STUART R. ZAIKOV  
R. WILLIAM PAULEY  
ARTHUR J. HOLLAND  
CHRISTOPHER J. DAGGETT  
WINONA D. NASH  
FRANK J. TORPEY

Prepared for the Delaware & Raritan Canal Commission by James C. Amon, *Executive Director*

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## PREFACE TO THE SECOND EDITION

The 1977 MASTER PLAN has proven to be a useful document. It has served as a basis for planning for the development of the Canal Park, as a resource inventory summary, and as a key to understanding the park and its managers.

This revision, therefore, does not make drastic changes in the original document. It brings the 1977 edition up to date, and it makes it clearer how the MASTER PLAN fits into the planning process for the Delaware and Raritan Canal State Park.

The 1977 MASTER PLAN set the stage for the Commission's master planning process. It established a basic understanding of the Canal Park and of how the park's inherent character relates to principles and objectives for its development.

The next document in the master planning process was the 1980 DESIGN GUIDE, which took the principles of the MASTER PLAN and related them to specific kinds of development projects. It states the issues for designers of picnic areas, trails, canoe docks, etc. in the Canal Park.

The 1982 HISTORIC STRUCTURES SURVEY is an architectural survey of the historic canal structures and of several of the canal's neighboring communities. It concentrates on the historic communities of Raven Rock, Lambertville, Titusville, Port Mercer, Princeton Basin, Griggstown, Blackwell's Mills, and East Millstone. As a consequence of this work, Lambertville, Titusville, Griggstown, and East Millstone have been included on the New Jersey and the National Registers of Historic Places. The Canal Historic District, with a width of one hundred yards on either side of the center line of the canal, and extending from Bull's Island to Trenton and from Bordentown to the double outlet lock in New Brunswick, had already been entered on the New Jersey Register in 1973, and on the National Register a year later.

In 1985 the Canal Commission adopted the HISTORIC AND RECREATIONAL DEVELOPMENT PLAN. This work builds upon the preceding studies by giving development plans to specific locations along the entire length of the Canal Park. It calls for almost \$30 million (1986 dollars) worth of improvement projects to the park over a twenty year period.

The Commission condensed the DEVELOPMENT PLAN into a booklet entitled the DEVELOPMENT GUIDE. The DEVELOPMENT GUIDE only addresses the projects in the larger work which are assigned the highest priority (\$12.8 million), and presents them in a manner which can be reviewed and commented upon with greater ease by the public. And comment they did! Almost fifty organizations in central New Jersey—planning boards, historical societies, recreation commissions, environmental organizations, governing bodies of municipalities and counties, and sportsmen's clubs—passed resolutions supporting the plans presented in the DEVELOPMENT GUIDE.

This second edition of the MASTER PLAN draws upon all of these previous publications without supplanting any of them.

The first edition of the MASTER PLAN was prepared by the Canal Commission's Executive Director with the help of many people. Drafts of the first edition were distributed to municipalities in the region, environmental, planning, and historical societies, and to many other people who expressed an interest. There was an overwhelming response of suggestions that greatly improved the quality of the first edition.

The same process was followed for the second edition, with the same beneficial results. Special

recognition should be given to the Canal Commission's Advisory Group under the leadership of David N. Kinsey, for their careful scrutiny of the first edition and of a draft for the second edition. Robert von Zumbusch (who was the project director for the HISTORIC AND RECREATIONAL DEVELOPMENT PLAN) contributed both broad, structural comments and detailed observations, all of which improved the plan. Captain William M. McKelvey, Jr., and Jonathan Gell deserve much credit for improvements to the historic aspects of the plan. John Kraml assured that the Commission receive the full benefit of professional insight from the Division of Parks & Forestry. Patricia A. Greenwald not only typed and retyped the manuscript, but also infused the work with her characteristic good spirit.

Final responsibility, of course, rests solely with the Canal Commission.

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## **SECTION I**

### **Visions of the Canal Park**

## CHAPTER I: VISIONS OF THE PAST

The idea of building a canal across the narrow "waist" of central New Jersey, and thereby creating an inland waterway connecting Philadelphia and New York City, is reputed to have begun in 1676 with William Penn. Penn is supposed to have ordered a study for this project, but no evidence remains that it was ever made. The idea lay dormant for over one hundred years while the British colonies in North America grew to importance, fought for and won their independence, then turned their attention to internal improvements of their vast, sparsely populated nation.

One form of internal improvement popular during the early nineteenth century was the construction of canals. The rivers in America generally did not connect the centers of population that were spread thinly along the coast. Ocean travel was long and dangerous and roads were terrible. In New Jersey, public passion for a canal to connect New York and Philadelphia became intense and the Legislature tried on several occasions to establish a canal through the central part of the State. The greatest obstacle to such a venture was the equally intense passion for railroad building. Rivalries between these two interests prevented the success of either until 1830 when the Legislature granted simultaneous charters to a canal company and to a railroad company to traverse central New Jersey. A year later the two rivals merged, forming the Delaware and Raritan Canal Company and the Camden and Amboy Railroad and Transportation Company—commonly called the "Joint Companies".

Both railroad and canal began construction in the fall of 1830. By September, 1833, the railroad was in operation over its entire line between Bordentown and South Amboy. While the section of the canal from Trenton to Kingston was opened at about the same time, it was not until the following year that the full canal was opened.

The official opening of the canal took place on 25 June 1834, when Governor Peter Vroom and other dignitaries began a two-day trip on the canal. The Governor's barge (which had to be borrowed from another canal) was met by cheering crowds at every lock, bridge, and basin along the route. They received a twenty-four gun salute when they arrived in New Brunswick; then Governor Vroom, his party, and a brass band paraded through the city. The event was topped with a formal dinner.

The canal's path across the State cuts a large meandering letter "Y". The main canal comes out of the Delaware River just north of Bordentown. From there it runs 44 miles through central New Jersey before it empties into the Raritan River in New Brunswick. The Bordentown location was chosen because north of this site the Delaware freezes earlier and stays frozen longer. New Brunswick was selected for the outlet because the head of navigation of the Raritan River is in New Brunswick. Ocean vessels could sail up the Raritan to New Brunswick and exchange cargo with the canal barges. A 22-mile-long feeder canal was built to supply water to the main canal. The feeder comes out of the Delaware at Raven Rock and runs next to that river all the way to Trenton, where it joins the main canal.

The engineering of the canal proved to have been excellent; during the 100 years it was in operation very few changes were made in the waterway. The feeder was built to be 6 feet deep and 50 feet wide, while the main canal was 7 feet deep and 75 feet wide. Water entered the feeder at an elevation of 70 feet above sea level. It passed through two locks before it joined the main canal in Trenton, about 14 feet closer to sea level. The main canal climbed through seven locks before it got to Trenton and then descended through seven more locks before reaching sea level at the Raritan River.

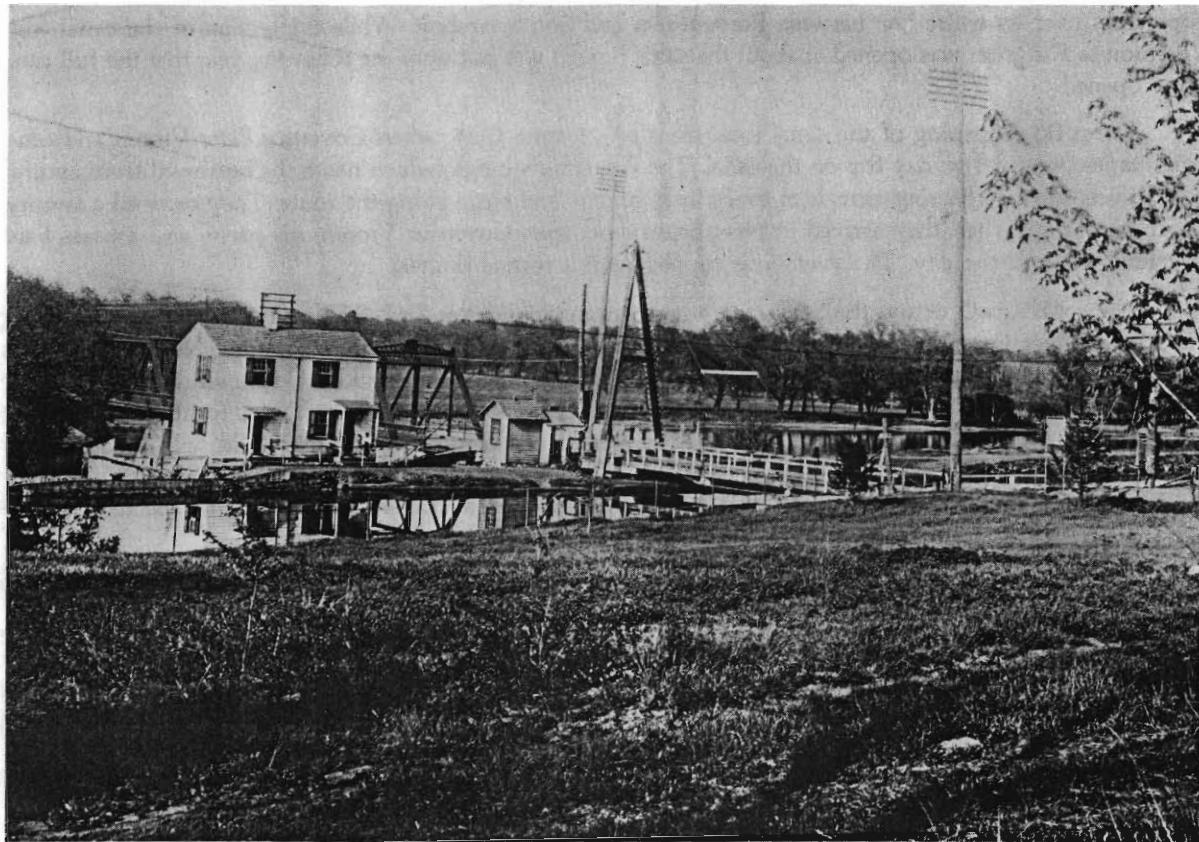
The cost of construction is estimated to have been about \$2,830,000; a modest expense even by standards of the 1830's when one calculates the return made on that investment. There was, however, another cost that cannot be calculated. The canal was largely dug by hand by Irish immigrants and scores of them died in 1832 when Asiatic cholera swept through labor camps. The workers were buried in unmarked mass graves on Bull's Island, at Ten Mile Run, and at Griggstown.

Canal purists insist that the feeder cannot truly be called a canal because it was built as a water conduit and not as a waterway for boats. It was, however, navigable by canal barges from the time it was built. Traffic on the feeder greatly increased after changes were made in the 1840's which allowed boats to enter at Lambertville. Coal barges coming down the Pennsylvania Canal from the Lehigh Valley were locked out of the Pennsylvania Canal at New Hope, crossed the Delaware River on a cable (being propelled by the current of the river), and were locked into the feeder canal at Lambertville.

Major engineering changes were made in the 1850's when the locks were made longer, the depth of the main canal was increased to eight feet, and stone ripraping was installed to arrest erosion of the canal's banks.

It took the better part of two days to travel from Bordentown to New Brunswick via the canal, with the most frequent stop-over being in Kingston. This two-day trip was quite an improvement over the old record of up to two weeks for water travel from Philadelphia to New York by going around Cape May.

It is difficult to assess the impact of the canal on the State. Trenton and New Brunswick clearly benefited from its presence because they became regional centers for the transfer of goods between wagons and trains and canal barges. Trenton witnessed an industrial boom shortly after the canal was opened; its population increased four-fold within a few years, and iron-works, ceramic factories, and many other businesses came



Landing Lane, New Brunswick. There was once a canal house at every bridge and lock, lived in by the families of the locktenders and bridgetenders. Seventeen of those houses remain, and all but three are owned by the State. The Landing Lane bridge pictured here was swung to the side whenever boats came through.



Griggstown, Franklin Township. A delivery truck is about to cross the canal at the Griggstown Causeway. Behind the truck is the millhands' and muletenders' barracks. The barracks has been restored and now serves as a home for a Canal Park ranger and an interpretive center for park visitors.

during this period. It is harder to determine, however, the impact of the canal on communities between the termini. Some farm products or locally produced goods were transported by the canal, but since the canal went through the narrowest part of New Jersey, few farmers had access to it. Further, road and railroad networks were not built to bring materials to the canal from New Jersey's hinterland. The small communities along the route, such as Rocky Hill, Griggstown, and East Millstone, must have received some impetus from the canal but they did not and still have not become major regional centers. The most obvious benefit from the canal was derived by New York and Pennsylvania because it was their commerce—mostly Pennsylvania coal destined for New York furnaces—that was the chief user of the canal.

There was, however, a psychological impact on central New Jersey from the canal's presence. The canal helped give a sense of regional identity to small farming communities. One community just south of Princeton reflected this sense of being connected with the outside world by calling itself Port Mercer, despite its great distance from any natural navigable waterway.

The Civil War and the industrial expansion that followed the War caused the 1860's and 1870's to be peak years for the Delaware and Raritan Canal. The record year was 1871 when 2,990,000 tons (80% of which was coal) were shipped through the canal. The total tonnage for that year is more than was carried in any single year on the much longer and more famous Erie Canal.

Another important event occurred in 1871. The Pennsylvania Railroad Company took a 999 year lease on both the canal and the Camden and Amboy's rail connection across the center of the State. From this time the canal showed a steady decline. By 1893, the canal showed a net loss in its operations and it was never operated profitably again. There were many reasons for this decline but the most important was that other railroad lines began to open in this area. In 1876, the Reading Railroad expanded its lines in Central Jersey and in 1893, the Pennsylvania Railroad also opened another line. The canal could not effectively compete with the much faster railroads. There also appears to be some truth to the often heard charge that the Pennsylvania Railroad deliberately killed the canal. Repairs became infrequent and rates were often raised for canal users on the very products that received simultaneous reductions for the railroad users.

In the winter of 1932-33 the canal closed as usual but it did not open in the spring of 1933. The charter to the Joint Companies called for forfeiture to the State for failure to operate the canal for 3 consecutive years, so, in 1937, with 933 years left on its lease, the Pennsylvania Railroad turned the canal over to the State.

The canal had lasted 99 years before it was believed to be obsolete. It had witnessed an important part of New Jersey history and hosted a wide variety of vessels. There were two classes of canal boats in most common use.

Those from the Pennsylvania Canal were 90 feet by 10.5 feet wide and drew 5.5 feet of water when loaded. The river boats from the Hudson and Erie Canal were 100 feet long by 17.5 feet wide and drew 7 feet of water when loaded. Most of the canal boats were mule-driven but the country's first use of steam tugs on canals was on the Delaware and Raritan Canal in the 1840's. When the canal was opened it was believed that there would be a thriving business in passenger service, but the canal could not compete with the speedier railroads for passengers and this service was abandoned within two years.

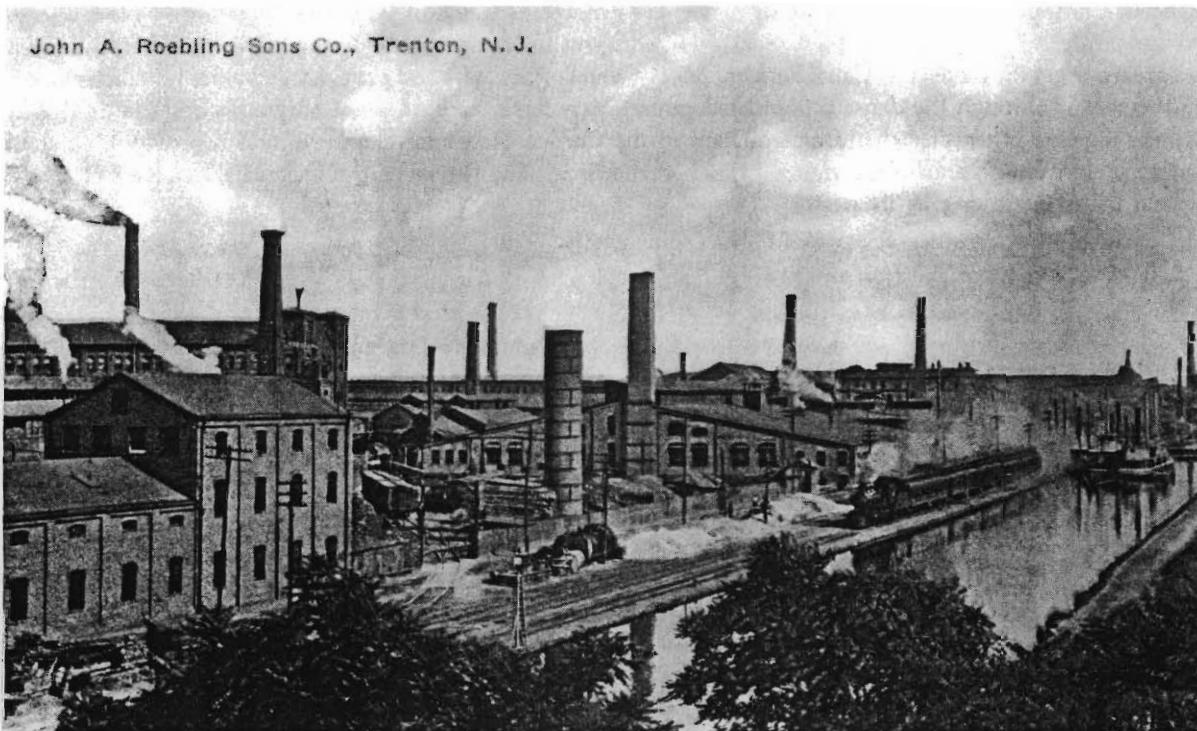
After the State took possession of the canal, several studies were made to decide what to do with it. They showed that it would have been too expensive to fill it in or to renovate it just for recreation; that the canal could not be expected to be profitable as a waterway; and that potable water was easily obtained elsewhere. But during the late 1930's, industry started to move out of central cities and sites near the canal were popular because the central New Jersey corridor had excellent railroad and road systems. This industry needed water and canal water could be furnished cheaper than well water. As a result, the Delaware and Raritan Canal, which could no longer make a profit by transporting boats on its water, made a profit from the water itself.

In 1936, the Trenton portion of the main canal was deeded to the City and filled as a WPA project. The portion of the main canal in Hamilton Township was thereby cut off from the rest of the canal and was abandoned. Rehabilitation of the rest of the canal, so that it could be operated as a water conduit, was started in 1944 under the supervision of the Division of Water Resources in what is now the New Jersey Department of Environmental Protection. Three wooden aqueducts, which carried the canal over the Alexauken and Swan Creeks and the Millstone River, were replaced by concrete structures. Wooden gates at Raven Rock, Kingston, and New Brunswick were replaced with concrete headwalls with steel sluice gates. The canal was also dredged and flumed in several areas to improve the flow of water.

The New Jersey Water Supply Authority, the canal's only official guardian for more than 30 years, has had to keep a constant watch over this man-made waterway. Culverts and other structures often need to be replaced or repaired, and when serious flooding occurs, there is often extensive work required to repair the canal. Despite the amount of work required to keep the canal operating, it is of vital importance to the State. At present there are contracts for the sale of 70.4 million gallons of water per day, bringing the State an annual income of over two million dollars.

In 1973, the Delaware and Raritan Canal and 17 structures relating to the canal were put on the National Register of Historic Places. A year later, in response to enormous pressure from several groups of concerned citizens, the New Jersey Legislature passed an act which established the Delaware and Raritan Canal State Park. This seems to complete the process of recycling the abandoned waterway. It has also completed an

John A. Roebling Sons Co., Trenton, N. J.



Standard Paint Co., Bound Brook, N. J.



The John A. Roebling Sons steel mill in Trenton and the Standard Paint Co. in South Bound Brook. The presence of the canal was a spur to industry in a few spots along its route. Note the basin to the right of Standard's roofing plant which was used for boats to load or unload without blocking the canal.

important change in who derives a benefit from the canal. Like much of what has happened in New Jersey, the canal originally did more for New York and Pennsylvania than for New Jersey. Now, however, the canal is a great **asset to** the State. The Canal Park enhances several urban areas and provides a corridor for conservation and **recreation** through the densely populated central New Jersey area. It is not only a historic site itself, but it links together other sites that are significant in the Garden State's development, and it provides water to industry, agriculture, and to the municipalities in the State. The future of the Delaware and Raritan Canal should be as interesting as its past.

## CHAPTER 2: VISIONS OF THE PRESENT

### *Environments of the Canal Park*

Although State parks come in a variety of shapes, they usually have extensive lands, massed together in such a way that most of the property is interior parkland. This kind of park can allocate a small amount of its perimeter land to serve as a buffer between adjoining, privately-owned property and the bulk of the park. Once the buffer is established, the rest of the park can create its own environments in order to enhance whatever park uses are desired.

The Delaware and Raritan Canal State Park is a very large park—it is over sixty miles long and has almost 3,600 acres—but it is generally so narrow that it cannot use some of its land as buffer. The Canal Park would be all buffer for most of its length if that kind of park planning were utilized. The character of the Canal Park, therefore, is dependent to an unusual degree upon the character of the environments on either side of the park. The potential for park uses, which must relate to the character of the park, is also dependent upon the environments of the Canal Park. In order to understand the full range of potential uses for the park, the Commission has undertaken extensive studies of the environments around the park. The principal tool for these studies has been field checking. The entire Canal Park has been covered on foot, many parts have been examined from a canoe, and wherever possible, it has been looked at from a car on a road



Near Alexander Road, Princeton. In the rural environments the sense of separateness from the region's development is one of the Canal Park's strongest attractions.



Rural landscape near the Canal Park in Delaware Township, Hunterdon County. The canal gave a great boost to the agricultural economy of nineteenth century New Jersey. Now, landscapes like this greatly enhance the public enjoyment of the canal corridor.

bordering the park. The Commission has also examined aerial photographs of the entire park and has studied land use, zoning, tax, and master plan maps from the adjoining municipalities.

The Commission found several environments. For example, downtown Trenton and Hunterdon County's Delaware Township present a very dramatic contrast. Yet even within one of these sections there is great variety. On the west side of Trenton, there are spots along the Canal Park that appear to be natural wildernesses. Closer into the town the city is evident but it is buffered by the trees, shrubs, and herbaceous plants lining the canal's banks. Along Passaic Street and near the Trenton Battle Monument the city has encroached to the water's edge. Beyond Old Rose Street, just before the canal enters the culvert under Route One, the landscape seems to have lost its human scale; huge structures stand unused, sumac is growing wildly, rats leisurely patrol the bank, and a super highway zips sealed cars past the canal at top speeds.

This same kind of variety can be found in any lengthy section of the Canal Park which, at first sight, might seem to be uniform. Further variety can be introduced by changing the vantage point from which one views the Canal Park's environments. Houses, roads, or railroad tracks that might dominate the view for a person walking the towpath could disappear altogether for a canoeist down on the water. In places where the park is wide or where there is a steep bank, a hiker can make great changes in what he sees by walking in different parts of the park.

Despite this variety, important common elements became evident as a consequence of the Commission's study, leading to the classification of six general environmental types. These environmental types are as follows:

*Natural:* A natural environment is one in which signs of man's impact are very slight. Because the canal itself is so obviously a man-made object it is impossible for the Canal Park to completely avoid evidence of

man's impact. Natural environments, however, are those places where there is nothing—or almost nothing—other than the canal to show that man has influenced the environment.

*Rural:* In a rural environment there are unobtrusive signs of man's impact visible from the towpath but natural conditions dominate the area. The most common rural environment in the Canal Park is one in which there is a lightly used road bordering one side of the canal, with intermittent houses on the other side of the road. Rural environments offer the widest range of appropriate recreational development.

*Suburban:* A suburban environment retains a dominant feeling of open space but those spaces are now chiefly defined by man-made structures. Areas in which there are well-spaced but regular houses adjacent to the Canal Park are suburban.

*Transportation:* There are portions of the Canal Park with very little development adjacent to the canal but the park is confined to a narrow corridor which is dominated by a highway.

*Urban:* In an urban environment the Canal Park is surrounded by dense development. It is, most simply, that part of the Canal Park that is in a city.

*Special Node:* There are short sections of the Canal Park, usually connected to points where roads cross the canal, that have a character unlike what is on either side, or that present special development potential. These areas have been designated special nodes.

A special exception to these six environments is made in part of Somerset County where the Canal Park is very wide. Here, there are sections where the edges of the ribbon park are rural but the interior is natural. One edge includes the canal and towpath—the heart of the Canal Park—so these areas have been designated “rural environments”, but in order to recognize the natural area in the interior of the park, these rural environments are noted as possessing “natural access.” In this situation, park use suitable for a rural environment will be encouraged along the edges of the park, while the interior will be treated as a natural environment.

In the following paragraphs the Canal Park is divided into segments, based upon the environmental type that has been assigned to each segment. For each segment there is a description of the Canal Park, a brief summary of the plans for the development as found in the HISTORIC AND RECREATIONAL DEVELOPMENT FOR THE DELAWARE AND RARITAN CANAL STATE PARK (referred to in the text as the Development Plan), and the environmental type assigned to that section. Inclusion of the recommendations from the HISTORIC AND RECREATIONAL DEVELOPMENT PLAN may create some confusion about which document came first, that plan or the MASTER PLAN. The first edition of the MASTER PLAN was published before the DEVELOPMENT PLAN and provided the basic structure for the decisions made in the DEVELOPMENT PLAN. In order to enhance an understanding of the Canal Park this second edition of the MASTER PLAN will summarize the DEVELOPMENT PLAN recommendations.

It may also be helpful for the reader to understand the criteria that are used for selecting the priority of development projects. Projects receive top priority if they accomplish any one of three critical objectives: 1) If they contribute toward the reestablishment or the strengthening of the Canal Park's continuity; 2) If they prevent historic structures from deteriorating; 3) If they contribute to distributing access to the Canal Park over its entire length.

Milepost numbers are also given for each section to indicate its length. These numbers begin with zero at the gate which controls flow into the canal at Bull's Island and proceed downstream to the Landing Lane bridge.

### **BULL'S ISLAND (Mile—0.7 to 0.5±)**

The island is divided by a road that runs between Route 29 and the pedestrian bridge over the Delaware River. The northern half is a campground and picnic area. There is a broad, clear path along the canal, as well as a road system through the campgrounds. The southern half, aside from a drive to a river access area and a leaf dump, has been designated as a natural area under the New Jersey Natural Area Systems Act. There is a good canal access area with parking for 15-20 cars. The abandoned railroad right-of-way has been converted to a path which reaches northward to Frenchtown but is east of the canal, not on the island.

To the west of the park is the Delaware River and scattered buildings on the Pennsylvania side. To the east is NJ Route 29, the dozen houses that make up the community of Raven Rock, and open land.

The *Development Plan* calls for maintaining and upgrading the present facilities, with clearer distinctions made among areas directed toward river uses, camping and picnicking, and the natural area.

Environmental Type: Northern half: Rural  
Southern half: Natural

### **FROM BULL'S ISLAND TO PRALLSVILLE (Mile 0.5 to 2.85)**

The canal and the path are separated for most of this area, with a mature woodland between them. The canal is enclosed in trees on both sides, producing a strong sense of isolation. There is no evidence that there ever was a towpath. The railroad path alternates between enclosed and open areas as it traverses woods and fields.

The Delaware River is the western boundary of the park. To the east, the view from the path is of Route 29 and farmland, with occasional farmhouses.

The *Development Plan* calls for continuation of the existing facilities, with additional paths built next to the canal and looping off of the railroad path. Better access is called for at Lockatong Creek.

Environmental Type: Natural

### **PRALLSVILLE (Mile 2.85)**

Much happens in a small space at the Prallsville Mill complex. There are nine buildings, whose construction spans a period from 1796 to the early 20th century. The most prominent building, the grist mill built in 1877, is a four-story masonry building that is used for exhibits, concerts, and community events. The grounds are carefully maintained. The Wickecheoke Creek flows into the canal at this location, and the canal has a long spillway into the Delaware River. There are also races—both exposed and below ground—crossing the site, and the canal lock.

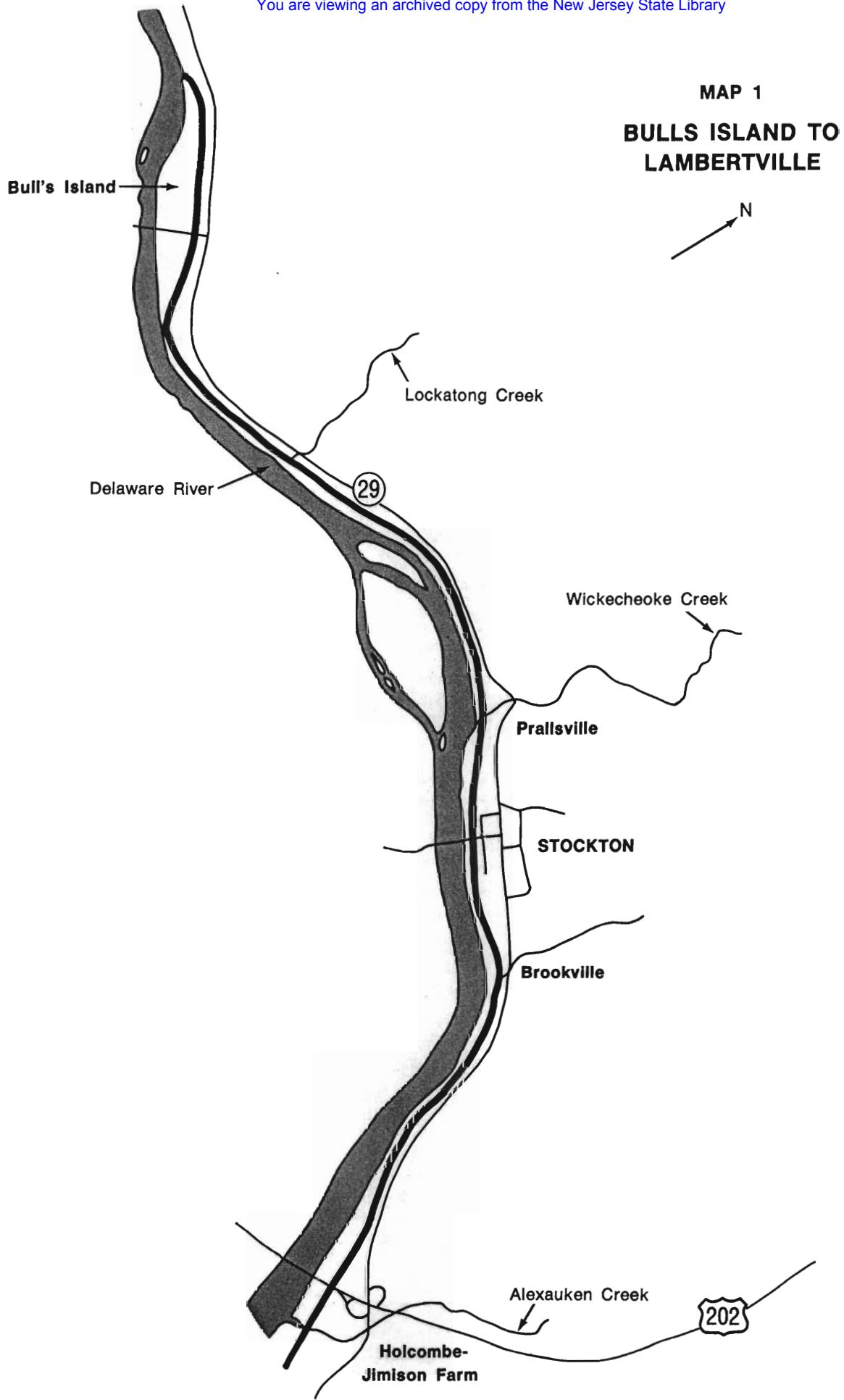
The houses on the east side of Route 29 are part of the Prallsville Historic District and, while privately owned, contribute to the historical atmosphere of the site.

The *Development Plan* calls for stabilization of the buildings and for historic interpretation of their functions. Better access to the canal and river is needed.

Environmental Type: Special Node

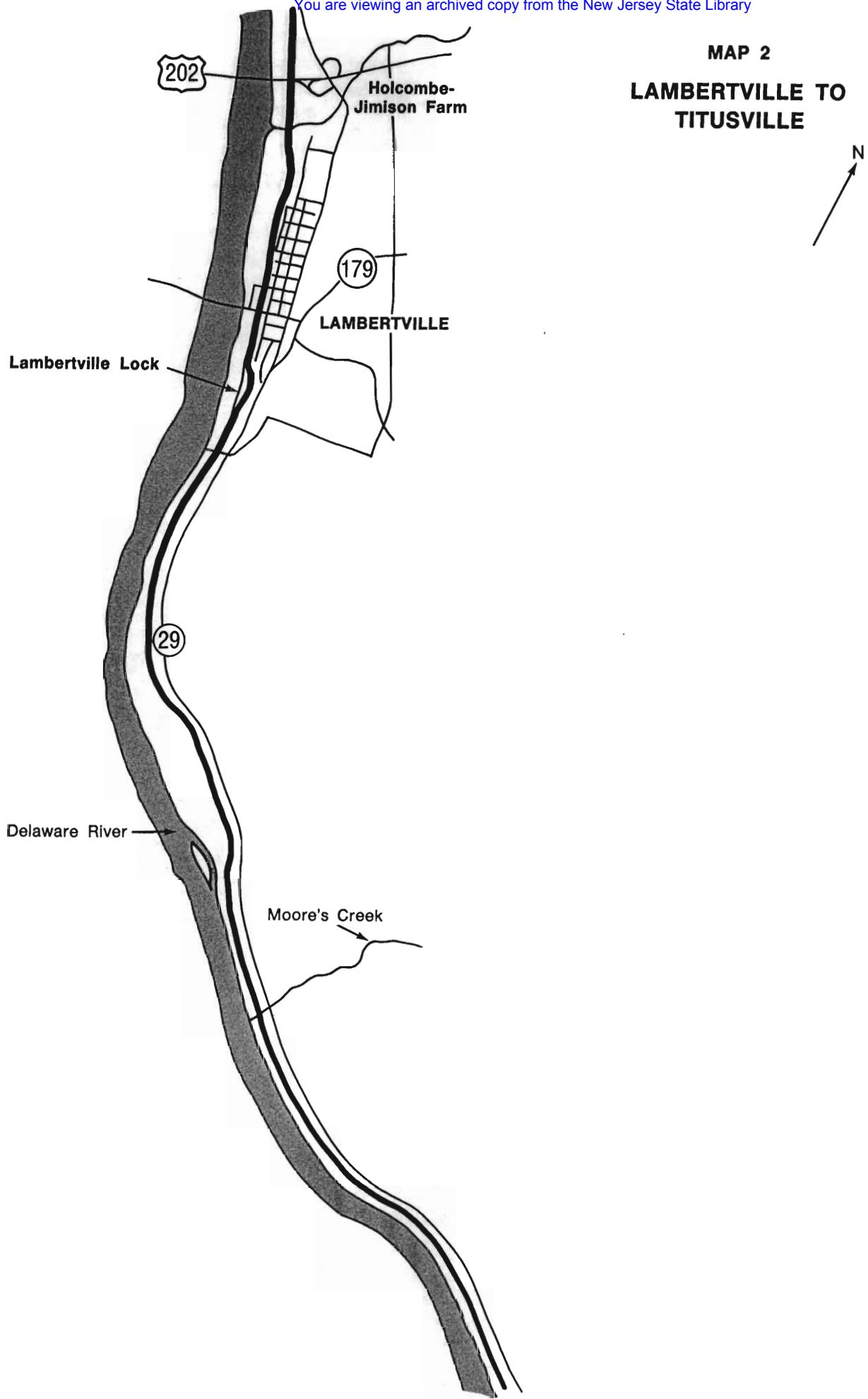
### **FROM PRALLSVILLE TO BROOKVILLE RAILROAD CROSSING (Mile 2.85 to 3.95)**

The canal and the railroad path separate at the Prallsville lock and pass through Stockton about



MAP 2

LAMBERTVILLE TO  
TITUSVILLE



two hundred yards apart until they rejoin at the railroad bridge south of Stockton in the community of Brookville. The canal is next to the river, but separated from it by a high flood-guard berm. A path on top of this berm is generally passable with a little effort.

The railroad path cuts through the center of town, with a little picnic area established at Bridge Street.

Many of the homes that are on the east side of the canal have maintained yards right to the water's edge. Both sides of the path are edged with backyards for most of its length, with a thin hedgerow separating public from private property.

The *Development Plan* calls for improvement to the path on the flood-guard berm and selective landscape installation to define the park property.

Environmental Type: Suburban

#### **FROM BROOKVILLE TO HOLCOMBE—JIMISON FARM (Mile 3.95 to 5.04)**

The railroad path is between the canal and the river for this section, sometimes fifty yards from the canal, sometimes right on the canal bank. The path ends at the railroad bridge which leads to the Trap Rock quarry because the railroad tracks remain in place from that point through Lambertville. It is possible to continue, however, on an unpaved and badly rutted road that parallels the tracks.

The view from the park is still of the Delaware River to the west, although there are places where there is too much heavily wooded land to see the river from the path. To the east, Route 29 is very close to the canal except for the area near the Holcombe-Jimison Farm. Trap Rock Industry's Lambertville quarry dominates much of this section, an element of visual interest but it also is a source of much dust and noise.

The *Development Plan* recommends improvement of the railroad path and reconstruction of the historic towpath on the east side of the canal from "Ireland's" bridge to the Holcombe-Jimison Farm bridge.

Environmental Type: Transportation

#### **HOLCOMBE-JIMISON FARM (Mile 5.04 to 5.87)**

The Holcombe-Jimison Farm is owned by the Hunterdon County Historical Society and operated by a non-profit farmstead organization. The farmstead consists of an early 18th century house, a barn, and several outbuildings; they are dedicated to the display of Hunterdon County's rural heritage. There is a lot of open space on both sides of the canal here, with much of it used by the Water Supply Authority as a landfill for material dredged from the canal.

U.S. Route 202 crosses this site at a considerable height and its embankment and bridge dominate the view.

The *Development Plan* envisions this as a major Canal Park access area, with trails, improved parking for both river and canal users, an area for picnics and field games, sanitary facilities and primitive camping.

Environmental Type: Special Node

#### **FROM HOLCOMBE-JIMISON FARM TO LAMBERTVILLE LOCK (Mile 5.87 to 7.23)**

This section of the canal runs along the western edge of Lambertville. The railroad tracks are in

place and used for the entire section but for most of it the towpath is open on the east side. The canal is narrow as is the path in this urban setting. Several of Lambertville's roads cross or dead end at the canal, so there is good local access throughout. At the south end of the town is Lambertville's Cavello Park and a relatively large open area around the lock.

Nearly the entire City of Lambertville is listed on the National Register as a Historic District. The houses, shops, former mills and factories that adjoin the canal are nearly all 19th century structures.

Big things are envisioned for Lambertville in the *Development Plan*. North of Bridge Street the needs are simply to complete the path and plant some trees and shrubs for definition and privacy. South of Bridge Street the plan is to have a canal boat ride which starts south of the City, and comes through a restored Lambertville Lock. Associated with this is the plan to rebuild the outlet lock to the Delaware River so that ferry service—via a cable—can be restored with New Hope.

Environmental Type: Urban

#### **FROM LAMBERTVILLE LOCK TO SCUDDERS FALLS (Mile 7.23 to 16.01)**

The canal is closely paralleled by the railroad path to the west and Route 29 to the east for all of this section. The Delaware River is very close to the path for nearly the entire length. The river bank and the canal bank next to Route 29 are lined with trees and shrubs, sometimes quite densely. The historic community of Titusville, Washington Crossing State Park, and a huge field just south of the Mercer/Hunterdon County line provide special events.

To the east of Route 29 for most of this section there is open space. There are a couple of abandoned quarries, the active Trap Rock Industry's Moore's Station Quarry (set back from Route 29 much further than their Lambertville Quarry and therefore less intrusive) and open fields.

The *Development Plan* concentrates most attention on the large field at the county line. This is to be the staging area for the canal boat ride into Lambertville. It is also envisioned as the headquarters for maintenance of the western section of the Canal Park. Access to the park and additional paths are recommended throughout the section.

Environmental Type: Transportation

#### **FROM SCUDDERS FALLS TO LOWER FERRY ROAD (Mile 16.01 to 18.12)**

The Canal Park and the Delaware River part company here but the railroad path stays right on the canal bank. The segments of park between the crossroads are about equal in length (1/2 to 3/4 mile each). At each crossing there is at least some parking. The Interstate Highway 95 crossing (along with the Route 29 crossing) is intrusive.

Although there are unmistakable signs of suburban development, the feeling from the Canal Park is still remarkably open and undeveloped.

The *Development Plan* calls for the enhancement of the access areas and the creation of stronger landscape buffers at a few places.

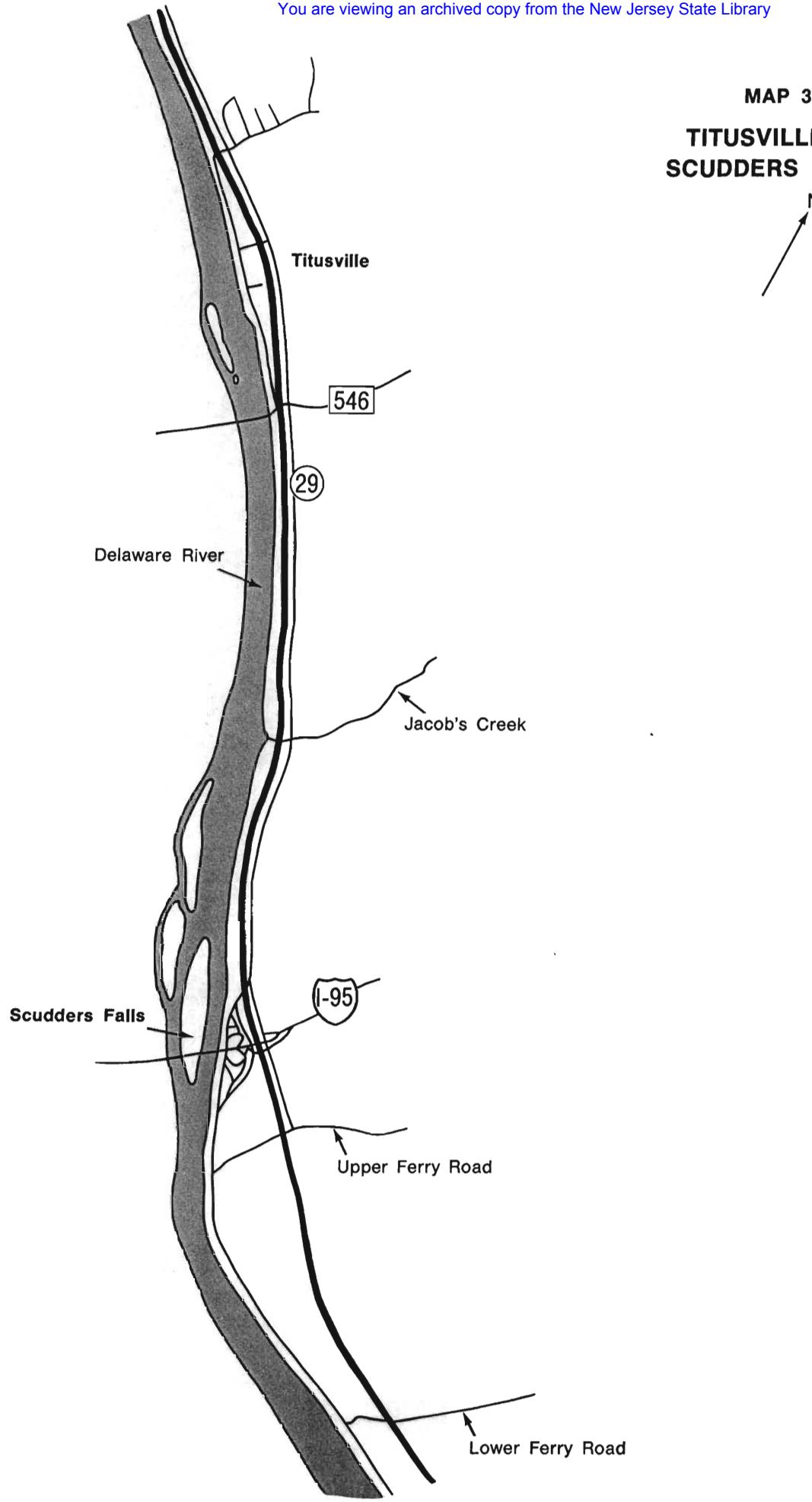
Environmental Type: Rural

#### **FROM LOWER FERRY ROAD TO OLD HERMITAGE AVENUE (Mile 18.12 to 20.30)**

While this section is within the boundary of the City of Trenton it is surprisingly uncongested. The abandoned railroad right-of-way is next to the canal for this entire length but it has not yet been improved

MAP 3

TITUSVILLE TO  
SCUDDERS FALLS





Trenton Country Club, Ewing Township. A sense of open space with natural elements defining the view can come from a golf course as well as from a farmer's pasture.

for recreational use. Beginning at the Sullivan Way aqueduct the canal has a five foot tall chain-link fence on both banks. This fence is a shelter for vines, shrubs, brambles, small trees, and weeds that grow so densely that it is difficult to see the canal from the railroad path. The fence also collects all wind-borne debris, giving the Canal Park a messy appearance even if it has been recently cleared.

A pedestrian bridge has been built at Cadwalader Park but the park—like the rest of Trenton—seems to turn its back on the canal. There is very little sign of connection between the Canal Park and the community.

The *Development Plan* calls for improvement of the railroad right-of-way as a path and the development of more access.

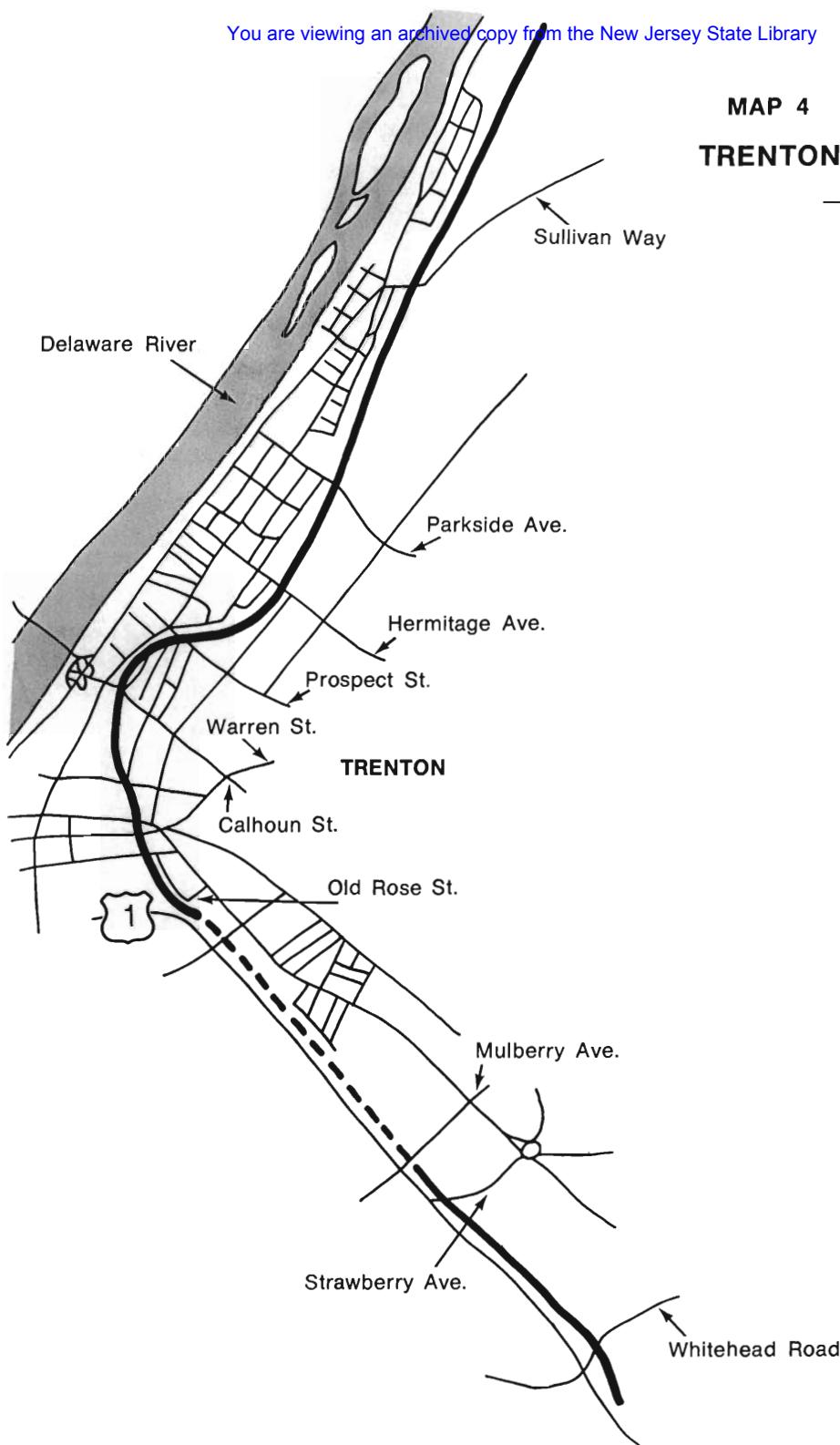
Environmental Type: Suburban

#### **FROM HERMITAGE AVENUE TO OLD ROSE STREET (Mile 20.30 to 20.91)**

This section of the Canal Park is unmistakably in the center of the Capital City. The immediate neighborhood to the Canal Park is seldom attractive, however. The backs of poorly maintained houses, parking lots, alleys and streets, abandoned commercial properties, and a lightly-used concrete park can be found on the canal's banks. The railroad right-of-way leaves the canal between Hermitage and Prospect but there is generally a remnant of the towpath along the rest of the canal.

**MAP 4**  
**TRENTON**

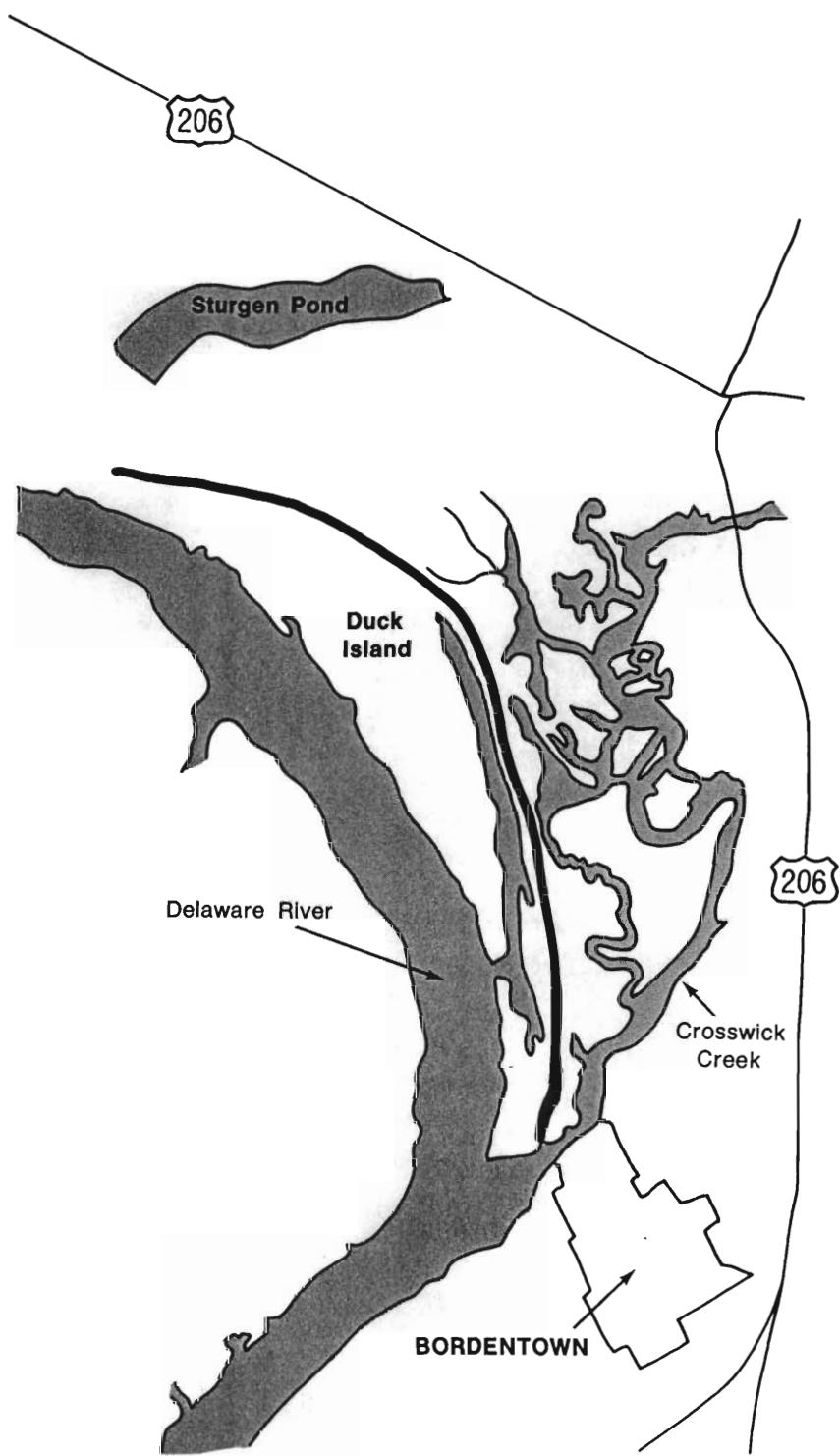
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MAP 5

DUCK ISLAND

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The *Development Plan* calls for improvement of the path and for more links between the Canal Park and the City.

Environmental Type: Urban

#### **FROM CROSSWICKS CREEK THROUGH LOCK TWO (1.95 Miles)**

This is the "abandoned" portion of the canal. It has been cut off from the rest of the canal, therefore it only has water as a consequence of drainage or tidal flow from the Delaware. The towpath has grown over. A railroad line is on the eastern bank. The area has been used as an illegal dump for many, many years and debris has never been cleared.

The view from the Canal Park is chiefly of the Hamilton Marsh, the largest freshwater marsh in the State. The view within a few years, however, will be dominated by Interstate Highway 295, which is to run parallel to much of the canal in this area and to cross it.

The *Development Plan* calls for restoration of the outlet lock and interpretation of the area around it, for rewatering the canal and rebuilding the towpath through Lock Two (now buried) and for partial restoration of Lock Two.

Environmental Type: Rural

#### **FROM NORTH OF LOCK TWO TO OLD ROSE STREET (Approximately 3.5 Miles)**

This portion of the canal was given to the City of Trenton in the late 1930's and filled as a WPA project. It has subsequently been sold to the New Jersey Department of Transportation and is to become a road right-of-way.

The *Development Plan* strongly advocates the development of a pedestrian and bicycle path in this segment in order to establish continuity for the Canal Park.

#### **FROM OLD ROSE STREET TO MULBERRY STREET (Approximately 1.3 Miles)**

U.S. Route One was built over this portion of the canal. The canal flows in two box culverts beneath the highway.

There is a great need for a trail in this segment to maintain the Canal Park's continuity.

#### **FROM MULBERRY STREET TO WHITEHEAD ROAD (Mile 23.20 to 24.18)**

The canal emerges from the culvert that carries it under Route One for a mile and a quarter at Mulberry Street. On the western bank for this entire length there is an abandoned railroad right-of-way that has not actually been improved as a multi-use path but which serves that function fairly well. At two places steel girders are built across the canal as a network to support Route One, which is on the western bank. These girders prohibit use of the canal. There is no State-owned area that could be used for parking, sitting, or picnicking, at either end of this section but there is a little room near Whitehead at Cherry Tree Lane where a canal house once stood.

At the Mulberry Street end of this section the western side is industrial. Best Block is using land right to the edge of the railroad path for storage. Hydrocarbon Research is close. The former Saturn Chemical plant is still imposing. The section nearer Whitehead, however, is more open. There is a fairly extensive field that looks like wetlands and some undeveloped land right at the Whitehead Road crossing.

The *Development Plan* calls for improvement of the railroad right-of-way, the development of an

access area with historical interpretation at Cherry Tree Lane, and a major access area at Whitehead, complete with a maintenance headquarters for the southern section of the Canal Park.

Environmental Type: Transportation

#### **FROM WHITEHEAD ROAD TO INTERSTATE 295 CROSSING (Mile 24.18 to 27.25±)**

The Canal Park has a number of special features in this section. There is a path on both sides of the canal, the Carnegie Road Bridgetender's House still stands, there is a turning basin near Lawrence Station Road and there is an interesting variety of enclosed and open spaces, of secluded and imposed-upon areas. The most dominant feature is Route One, which runs nearby and roughly parallel to this section, although it crosses the canal near I-295. The Route One crossing does allow continuity for canoeists but it is a dead stop for users of the towpath. There is not even a reasonable detour for pedestrians or bicyclists. Route One simply blocks the path. The railroad path on the west side of the canal ends at Carnegie Road, but a path continues to Route One and from Route One to I-295. On the east side, the historic towpath is in place from Whitehead to Route One. It is narrow and eroded in places but passable.

One gets the feeling that the Canal Park is eluding the massive impact of Route One and its associated development in this section. The highway is always there but it is seldom really intrusive. In fact, there are some sections of dense floodplain forest on the east side of the park and a number of extensive natural landscapes on the west side as well. The Ewing-Lawrence Sewage Treatment plant near Whitehead is not intrusive except occasionally when an odor is noticeable.

The *Development Plan* calls for path improvement, better parking at the crossings, and a pedestrian bridge across Route One.

Environmental Type: Transportation

#### **FROM INTERSTATE 295 TO PORT MERCER (PROVINCETOWN ROAD) (Mile 27.25 to 28.55±)**

The towpath is on the western side of the canal in this section, with a flood guard embankment on its west and a dense woodland right to the water's edge on the east side of the canal. This section is rich with the variety of a natural landscape but without any man-made elements that relate to the historic canal's operation except the basic elements of canal, path, and guard berm.

To both the east and the west of the Canal Park there is dense woodland.

The *Development Plan* recognizes the natural quality of this area and recommends development of blinds or minor paths that would enhance nature study.

Environmental Type: Natural

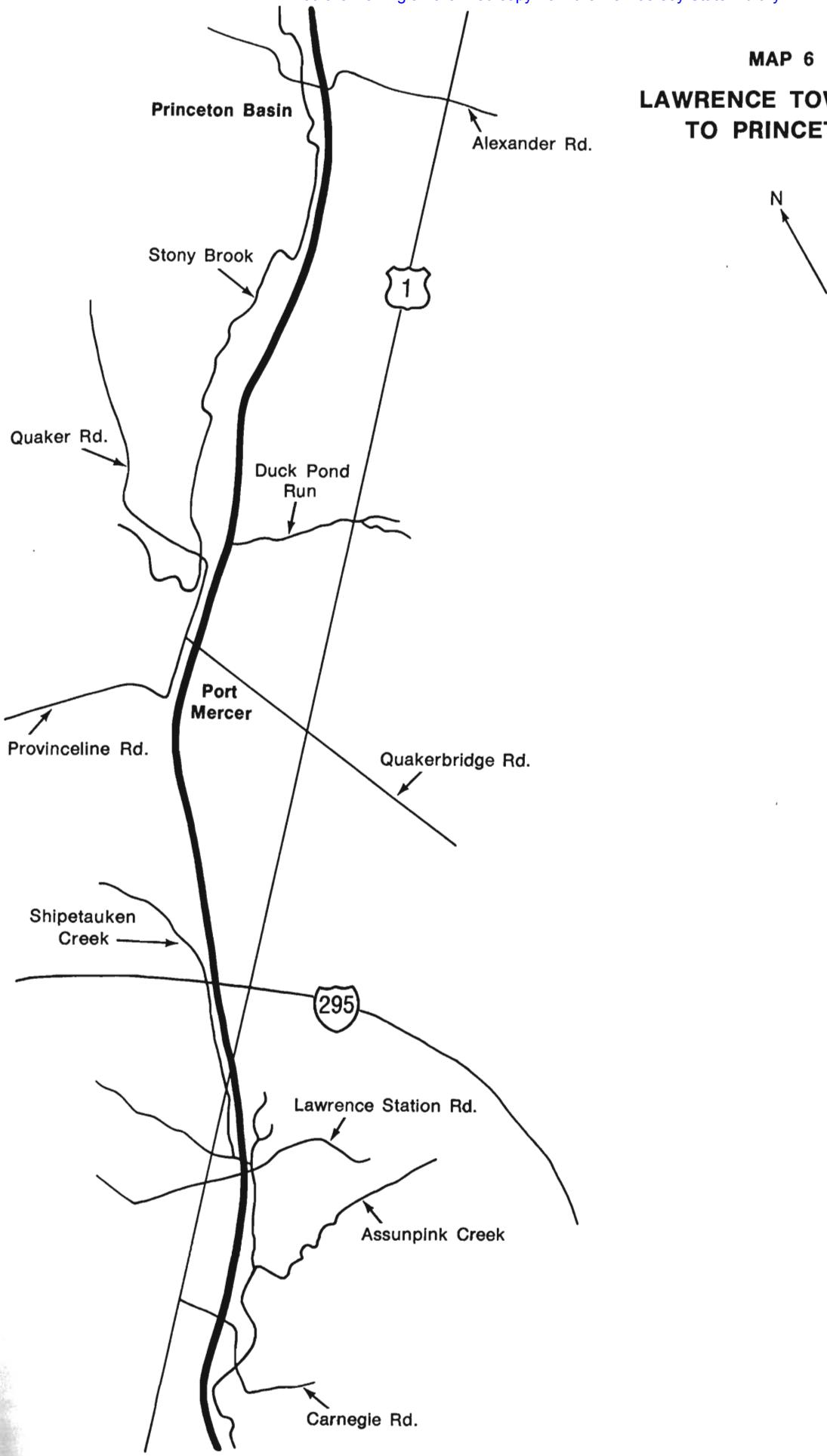
#### **POR MERCER (FROM PROVINCETOWN TO QUAKER ROAD) (Mile 28.55± to 29.18±)**

The towpath is nearly obliterated for the section that is paralleled by Provincetown Road but it does pick up again at the canal crossing and is intact for the section that is paralleled by Quaker Road. The Port Mercer canal house is an important anchor for this section.

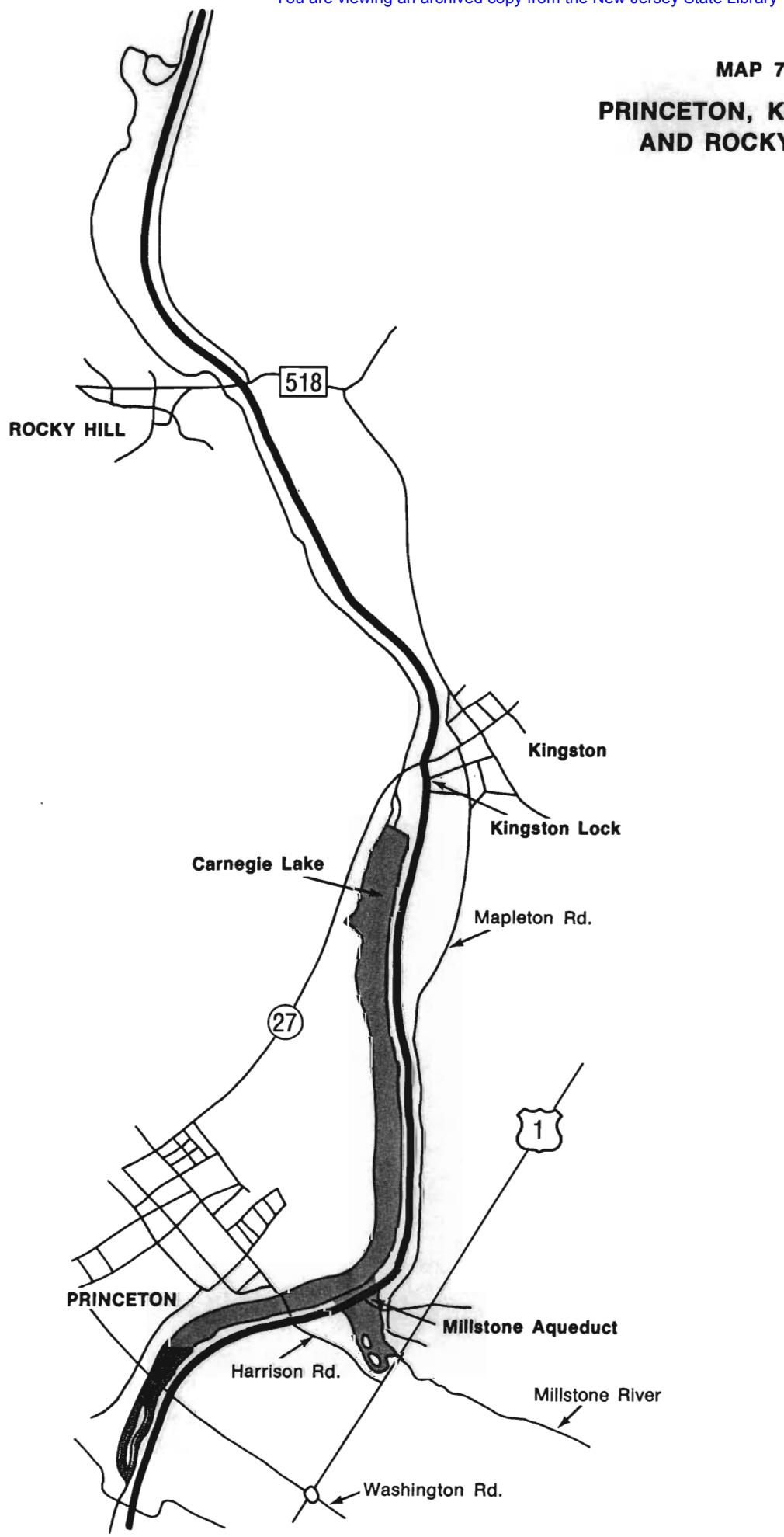
At present the immediate prospect is of open space. A sod farm, a wetlands area owned by the State, a wooded area, and an abandoned farm field are much stronger visual elements than the handful of houses that comprise the historic community. A new crossing and a large residential development are planned for the future.

MAP 6

LAWRENCE TOWNSHIP  
TO PRINCETON



MAP 7  
PRINCETON, KINGSTON  
AND ROCKY HILL



The *Development Plan* calls for focusing attention and access activity more directly on the canal house.

Environmental Type: Special Node

#### **FROM QUAKER ROAD TO ALEXANDER ROAD (Mile 29.18± to 31.45)**

The towpath for much of this section has become overgrown with trees and underbrush while a path on top of the flood guard berm to the west of the canal has been kept open by use. Closer to Alexander Road, however, the towpath is open. For about half of this area the fire of January 1986 devastated the trees on both banks.

This section presents a great mixture of context for the Canal Park. There is dense woodland on the west side for the entire section except for the small park right at Alexander Road. On the east side there is dense woodland near the Port Mercer end, then the residential developments of Canal Pointe and Princeton Overlook which are highly visible from the towpath, and finally a half dozen houses close to the canal that are part of the Princeton Basin historic community. There is also a municipal park next to Alexander Road which includes a sign that interprets the historic community that was here while the canal was active.

The *Development Plan* calls for clearing the entire towpath and improving it for recreational use.

Environmental Type: Rural

#### **FROM ALEXANDER ROAD TO THE MILLSTONE AQUEDUCT (Mile 31.45 to 32.96)**

There are paths on both sides of the canal throughout this section. On the east is a path on the Sun Oil Pipeline Company's right-of-way. On the west is the towpath. The character of the two paths varies from open to enclosed for the entire section. Access is good at Alexander Road (with both Turning Basin Park and the small Canal Park access area) and fair at Washington Road, but there is poor access at Harrison Street. The railroad bridge across the canal near Alexander is a historic swing structure and introduces an interesting element to the park.

On the eastern side of this section is a dense but fairly shallow woodland—much of it growing on wetlands. To the west is mostly a narrow open band with some trees in it and then Lake Carnegie. The lake is a strong influence even though it is not too close to the towpath.

The *Development Plan* calls for historic interpretation of the missing canal houses at Alexander, Washington, and Harrison Road crossings. It also recommends better controlled access and path improvement.

Environmental Type: Rural

#### **FROM THE MILLSTONE AQUEDUCT TO KINGSTON LOCK (Mile 32.96 to 35.24)**

The towpath is on a narrow strip of land between the canal and Lake Carnegie for this section. The trees on both sides of the towpath—all of which were cut to the ground during the dredging in 1985—are growing rapidly and beginning to shade the path. The Kingston lock and Millstone aqueduct parking areas provide excellent access for this section. A path on the eastern side of the canal exists on the Sun Oil Pipeline right-of-way between Kingston and St. Joseph's Seminary.

For about half of this section Mapleton Road lies right on the canal's eastern bank. The fifteen foot wide buffer is filled with mature trees that provide some visual screening. The rest of the eastern side

is occupied by a large field used at present by Princeton Nurseries. On the west side, the Canal Park is bordered by Lake Carnegie.

The *Development Plan* calls for improvements to the access areas at both ends, particularly the Kingston lock area where an abandoned sewage treatment plant stands on park property next to a turning basin.

Environmental Type: Rural

#### **FROM KINGSTON LOCK TO ROCKY HILL (ROUTE 518 CROSSING) (Mile 35.24 to 37.11)**

All the way from Kingston to New Brunswick a tree-enshrouded towpath hugs the bank of the canal, which is to the left of a person looking downstream. Also on this "left" side for the twenty one miles between Kingston and New Brunswick is a river, either the Millstone or the Raritan. The land between the canal and the river, and in many cases the land on the other bank of the river as well, is part of the Canal Park.

Between Kingston and Rocky Hill the Millstone River is quite close to the canal and separated from it by a steep bank that is covered with trees and poison ivy. A path on an abandoned railroad right-of-way on the east bank of the canal extends about half way from Kingston to Rocky Hill.



Between Kingston and Rocky Hill. This section of the Canal Park receives heavy use because it is near dense development yet isolated from its impact by a corridor of natural land.

Trap Rock Industry's Kingston quarry dominates the half of this section nearest to Rocky Hill. Like their Lambertville quarry, it is noisy and the source of much dust, but it does provide some interesting views. A Department of Transportation yard has an intrusive impact at Kingston.

Development plans for this section are dominated by the quarry's plan to put a new road near the canal. It is to be accompanied with landscaping, an access area at the Rocky Hill end, and a path the full distance. The DOT yard is also to be replaced with a small park.

Environmental Type: Rural

#### **FROM ROCKY HILL (ROUTE 518) TO GRIGGSTOWN CAUSEWAY (Mile 37.11 to 40.16)**

This is a wide section of the Canal Park, with the canal and towpath on the east side, and the meandering Millstone and its floodplain on the west. A path through the floodplain between the canal and the river supplements the towpath. A pedestrian bridge and the Griggstown lock provide access to the canal and towpath at two areas in this section.

To the east of the canal is Canal Road, a narrow rural road with 18th and 19th century homes generously spaced and generally well set-back from the road. The narrow, rural character of this road is very important to the character of the Canal Park. To the west for most of the section is River Road, a more heavily used road.

The *Development Plan* calls for improvement of access at the pedestrian bridge and for historic restoration at the lock.

Environmental Type: Rural with Natural Access

#### **THE GRIGGSTOWN CAUSEWAY (Mile 40.16)**

The Griggstown Causeway extends between Canal Road and River Road, crossing both the canal and the Millstone River. It was a 19th century focal point for the Griggstown community and the area contains a number of historic buildings, densely sited. The space between the canal and the river to the south of the Causeway is a parking area with picnic benches, grills, and a large open field. The character of the place as a whole is often cited as the epitome of a preserved 19th century rural scene.

The *Development Plan* calls for greater use of the buildings at the Causeway for historic interpretation and recreational use, including sanitary facilities.

Environmental Type: Special Node

#### **FROM THE GRIGGSTOWN CAUSEWAY TO SUYDAM ROAD (Mile 40.16 to 42.46)**

The canal and towpath leave all signs of man's impact shortly after the causeway and traverse a heavily wooded area. There is another path winding from the towpath through the Millstone floodplain and back to the towpath.

Open space and woods surround the canal and towpath.

There are no development plans for this section.

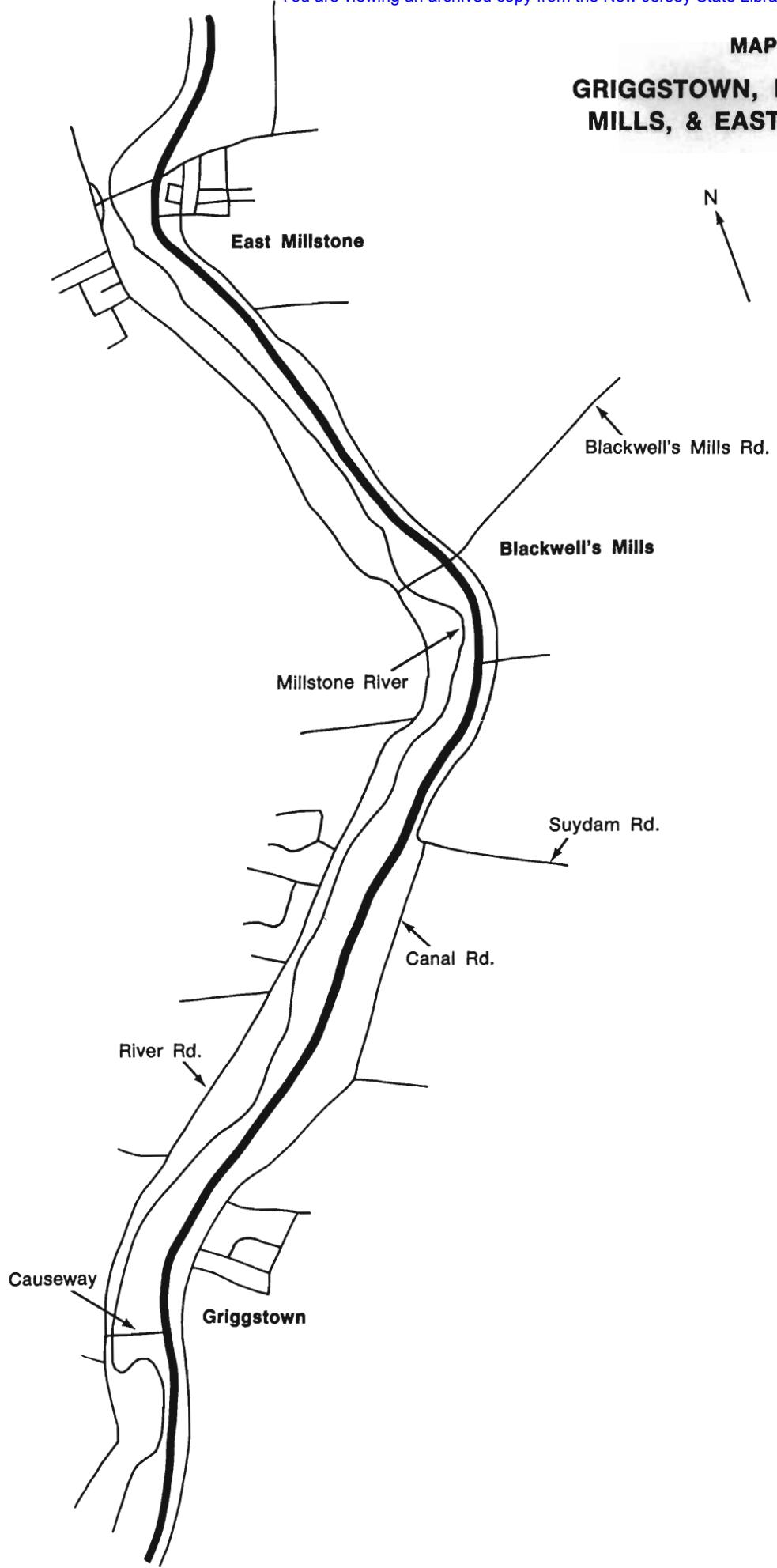
Environmental Type: Natural

#### **FROM SUYDAM ROAD TO 10 MILE LOCK (Mile 42.46 to 49.09)**

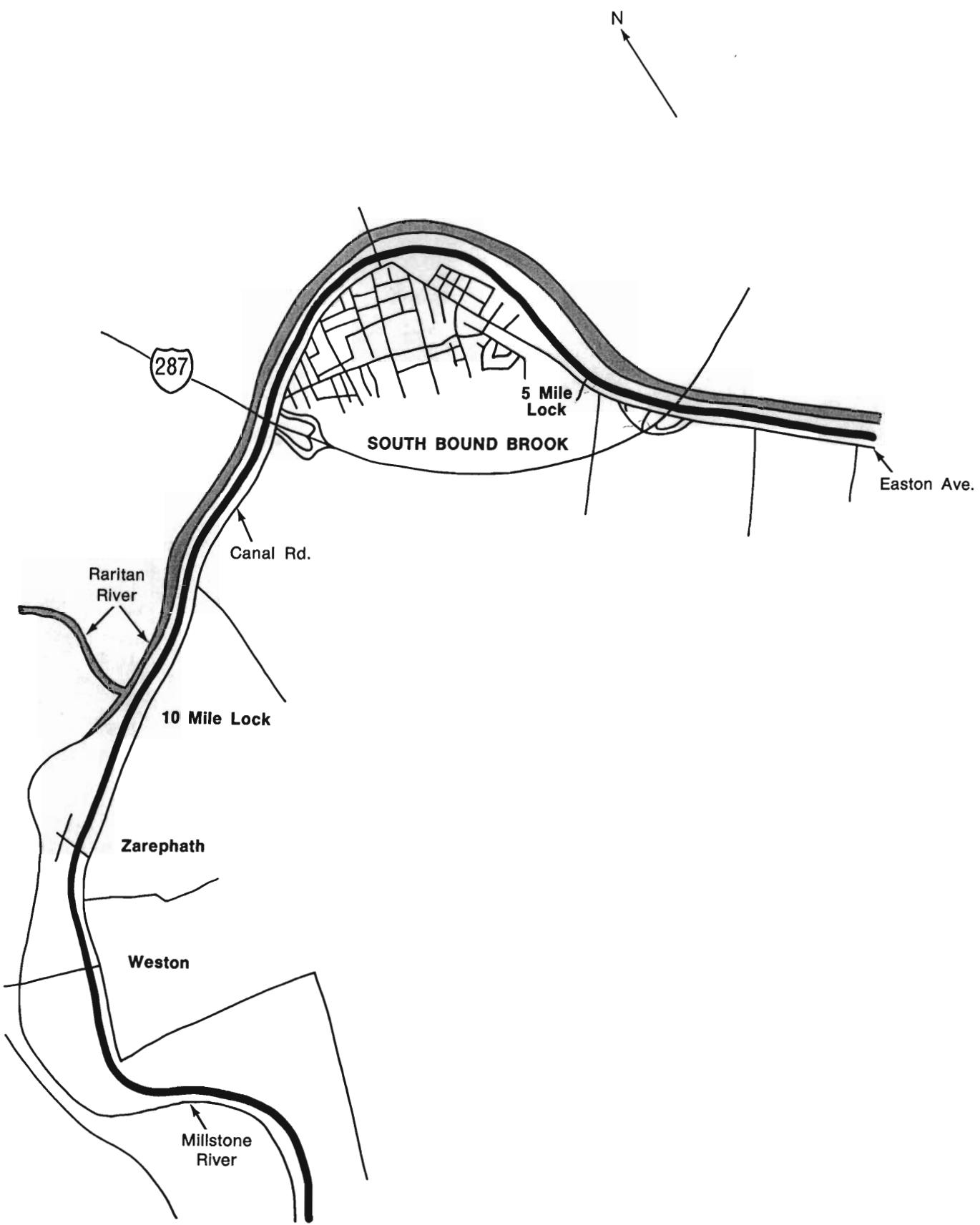
Towpath and canal course along the eastern edge of the Millstone River floodplain for this entire

MAP 8

**GRIGGSTOWN, BLACKWELL'S  
MILLS, & EAST MILLSTONE**



**WESTON AND SOUTH  
BOUND BROOK**



section. The widest portions of the entire Canal Park are in this section, which includes all of the undeveloped land between Canal Road and River Road. At one place, the park is about 2,000 feet wide.

Aside from a portion between East Millstone and Weston, Canal Road is close to the canal for this section. Blackwells Mills, East Millstone, Zarephath, and Weston offer 19th and early 20th century clusters of buildings. At each of these places there is a causeway across the canal, allowing for access to the towpath.

The *Development Plan* calls for restoration of the canal houses at East Millstone, Zarephath, and Weston; for path improvement; sanitary facilities; portages between the canal and the river; seating; bank stabilization; and an enhanced access area at Weston. All of these improvements would be continuations of the present uses; there is no desire to effect much change in this area.

Environmental Type: Rural with Natural Access

BF

#### **FROM 10 MILE LOCK TO WESTERN CROSSING OF I-287 (Mile 49.09 to 50.53)**

The Raritan River closes in on the towpath, affording tree-framed views of a broad river to complement the views of the canal. There is no real access to the canal or towpath in this section. The area around the lock features the lock, the locktender's house, the confluence of the Millstone and the Raritan, and a pumping station to bring Raritan River water into the canal.

On the east side of the canal, Weston Canal Road is heavily used and there are industrial buildings on large lots.

The *Development Plan* calls for historic interpretation and minor work to enhance recreational use.

Environmental Type: Suburban

#### **FROM WESTERN I-287 CROSSING TO 5 MILE LOCK (Mile 50.53 to 53.18)**

This is the South Bound Brook section of the Canal Park, as that borough is enclosed in the loop made by the Raritan River and mirrored by the canal. The South Bound Brook lock is the central feature, providing access as well as historic interest.

The Raritan River is quite close to the towpath for this entire section, while homes, roads, and industry in South Bound Brook are quite close—sometimes intrusively close—to the other bank.

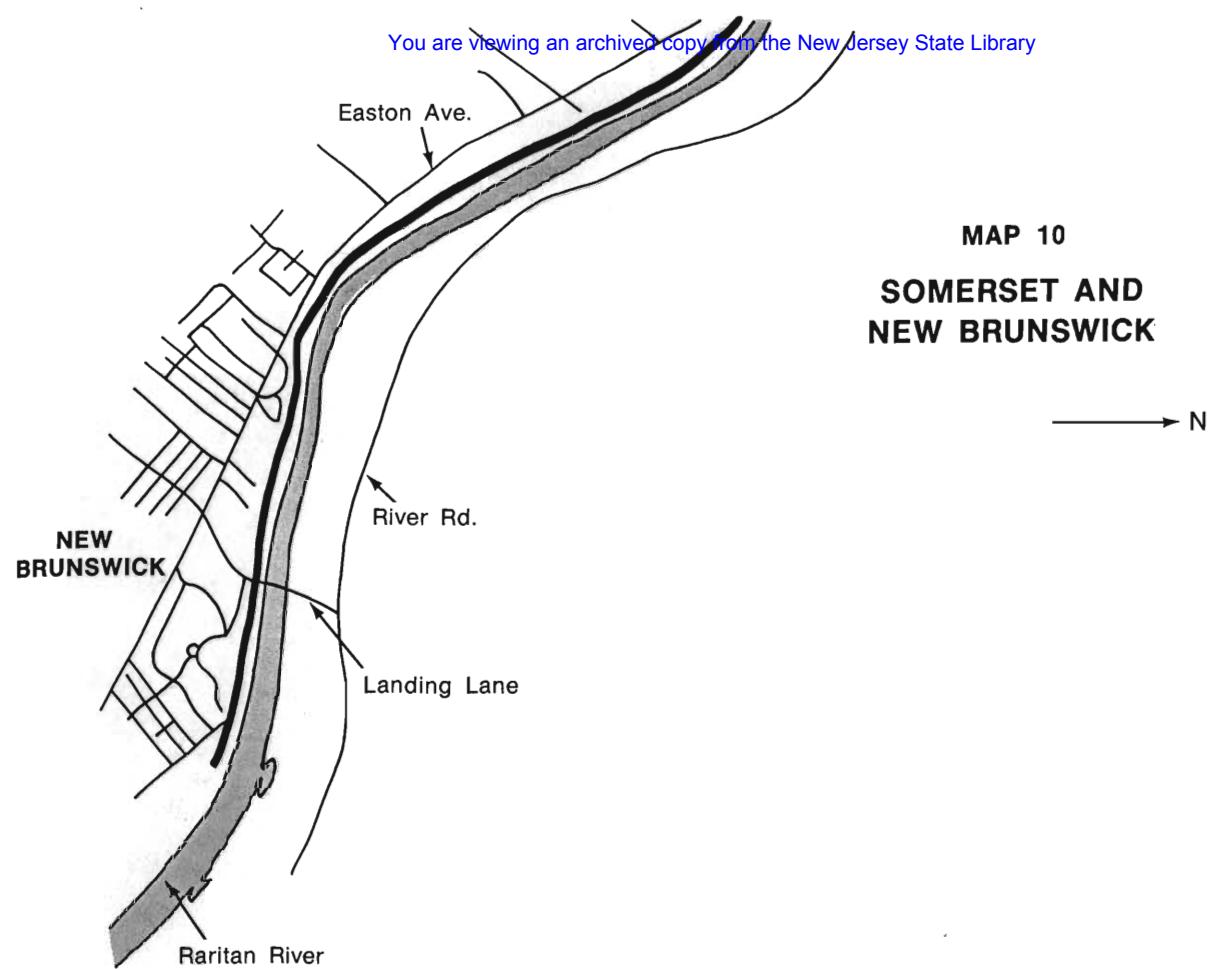
The *Development Plan* calls for improving access at both the South Bound Brook lock and 5 Mile lock, for sanitary facilities at the South Bound Brook lock, and for path improvement between Main Street and 5 Mile lock.

Environmental Type: Urban

#### **FROM 5 MILE LOCK TO LANDING LANE BRIDGE (Mile 53.18 to 56.84)**

This long, relatively straight section of the Canal Park has recently been greatly improved with a pedestrian bridge at Franklin Township's Meadows. Another bridge is slated for an access area near Landing Lane, called the Freda Marden Common.

The Raritan River is a close neighbor to the towpath for this entire section. On the other bank, Easton Avenue is quite close at places with its four lanes of high speed traffic and shopping areas backing onto the Canal Park. The Meadows, Rutgers Preparatory School, and the Freda Marden Common (part of the Canal Park) provide open space.

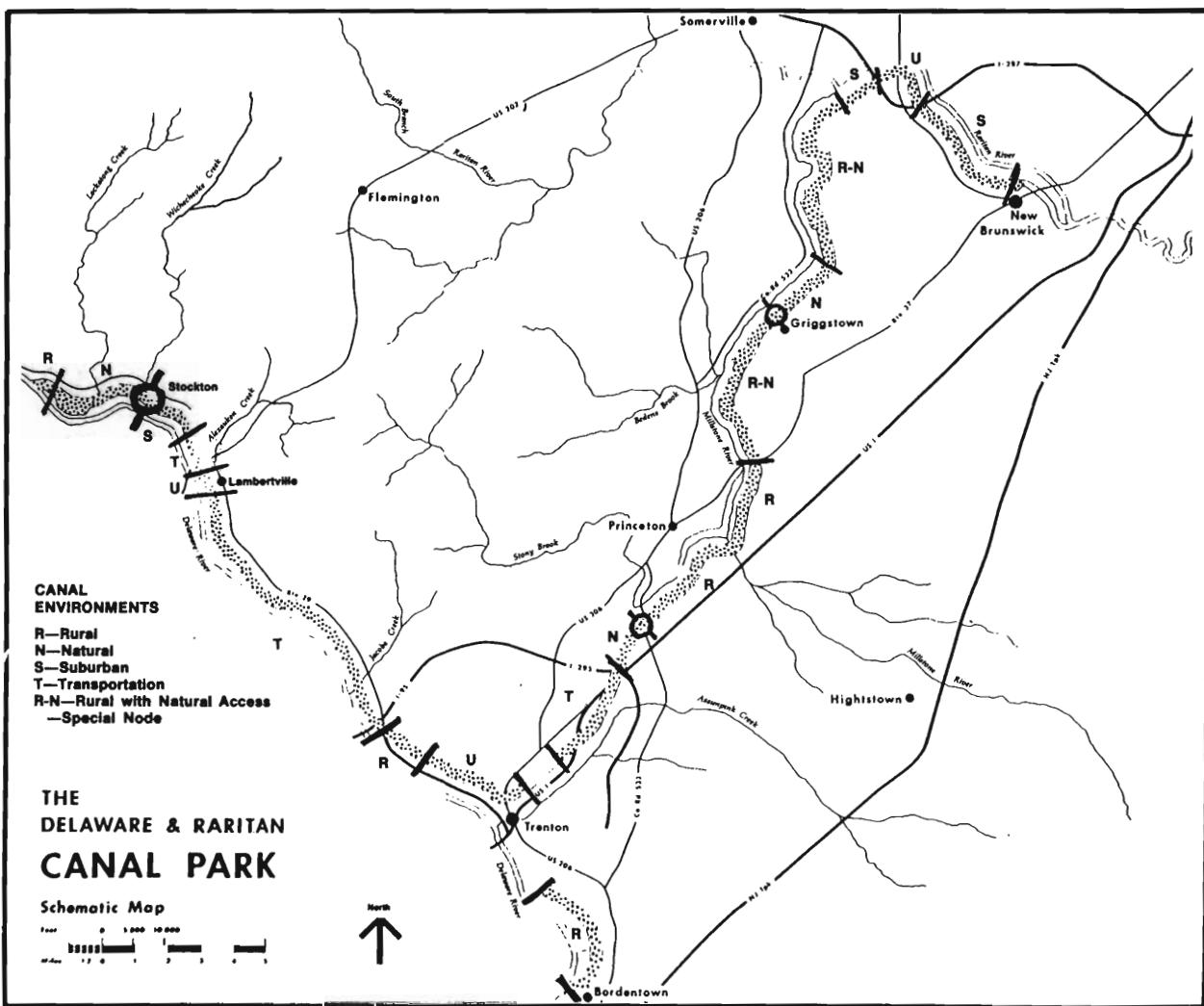


The *Development Plan* calls for improved access at 5 Mile lock, improvements to the house there, and development of a major access area at Freda Marden Common.

Environmental Type: Suburban

**NOTE:**

The Canal continued another three miles into the City of New Brunswick before it emptied into the Raritan River. The Canal Park, however, was specifically stopped at the Landing Lane Bridge when it was established in 1974. Subsequently, more than a mile of the canal was covered by a newly-built New Jersey Route 18. The last mile of the canal along with the double outlet lock, was to have been restored by the New Jersey Department of Transportation in accordance with a 1973 agreement and operated as a park by the City of New Brunswick. Sixteen years later no work toward its restoration has been undertaken.



## CHAPTER 3: VISIONS OF THE FUTURE

In the process of publishing a series of planning documents, the Canal Commission has forged a body of principles and objectives which serve to guide decisions about the physical development of the Canal Park. This chapter gathers together those principles and objectives and states them explicitly.

The following list begins with some general principles and their associated objectives. It then addresses specific principles related to the five roles of the Canal Park as stated in the Canal Park Law of 1974: as a water resource, as a recreational site, as a historic site, as a natural area, and as a way of enhancing urban areas.

### PRINCIPLE:

*The Canal Park is a linear park.*

The Delaware and Raritan Canal Park is quite properly a State Park because people from an area that includes at least the four counties through which the canal flows will enjoy this park. But, because it is a linear park, the Canal Park must have qualities that are unlike the State Parks. The linear shape imposes special problems on development because it means that the Canal Park cannot be developed at any one place to accommodate large numbers of people.

To have intensive development, capable of accommodating large numbers of people in one area, would destroy those qualities that make the Canal Park an attractive resource.

The Commission will deal with this problem by concentrating on the development of a large number of special areas, along with the development of linear elements that will connect these special areas. The Commission plans to enhance some specific urban neighborhoods and historic sites, and to develop recreational facilities for regional use, but the entire park will be more than just a collection of small parks because each site will be tied to the whole—a whole which encompasses over 60 miles of linear park. In this manner any one of the local picnic or historical sites becomes more than a neighborhood park, despite the similarity of scale or even of facilities. It is more because it is both a starting point for a park experience that encompasses many such areas and it is a stopping point for people who started elsewhere and have used a park trail or the canal to reach that place.

### OBJECTIVES:

1. Access areas should be developed at frequent intervals to achieve easy access from each neighboring community, but each access area should be kept modest in scale so that it does not attract so many people that its character is overwhelmed.
2. Attention should be given to recreational uses that are complementary to a linear park, such as hiking, bicycling, canoeing, or jogging.

### PRINCIPLE:

*The Canal Park is a connector.*

Nearly every principle and objective held by the Canal Commission for the development of the Canal Park is derived from the Commission's understanding of the peculiar shape of the park. The Canal Park is over sixty miles long, yet in places is less than 100 feet wide. A park with this configuration is usually referred to as a linear park, meaning that it is narrow and long like a line. The Commission believes that the most important quality possessed by a linear park is the role it can perform as a connector. The canal was, of course, originally built to serve as a connector; it connected the two great metropolises that neighbor New Jersey—

New York City and Philadelphia. The Canal Park does not connect these cities but it does connect communities in central New Jersey; it connects different land forms and different kinds of natural areas; it connects historic and recreational sites; and it connects present-day New Jersey with its nineteenth century heritage.

### **OBJECTIVES:**

1. Breaks in the continuity of the canal or its path should be repaired so that both of these features of the Canal Park are continuous.
2. Land should be acquired which will enhance the continuity of the Canal Park's sixty-mile corridor and that will allow the Canal Park to connect with resources in the region that are not adjacent to the canal.
3. Methods of controlling land other than outright acquisition should be pursued in order to enhance the Canal Park's role as a connector. These methods include the acquisition of easements, gifts of land or of easements, acquisition of land or easements by other governmental organizations, and restrictive zoning regulations by municipalities.
4. Other State agencies, counties, municipalities, and private individuals or groups should be encouraged to develop, enhance, and protect resources which can become a part of the network associated with the Canal Park.

### **PRINCIPLE:**

*The Canal Park must retain a degree of serenity and separation from the man-made world.*

People go to parks for many reasons, but every reason is related in some way to the desire to seek a respite from the noise, the bustle, and the hard edges of the man-made world. Trees and grass are as important to a successful picnic as deviled eggs and lemonade. The allure of the towpath for joggers, bicyclists, or walkers is its setting amidst water, wildflowers, trees and shrubs. If buildings, automobiles, and concrete sidewalks were to intrude upon or dominate the Canal Park then there would be no reason to seek it out.

The degree of serenity and separateness from the man-made world varies with the nature of the Canal Park's environment. In Trenton, or other urban environments, it would be foolish to think that it would be either appropriate or possible to establish a wilderness around the canal. As little as a strip of grass, an alley of trees, and some shrubs may be enough in the city. In more rural areas, however, the sense of separation must be stronger.

### **OBJECTIVES:**

1. Vehicular intrusion, either from roads that enter the Canal Park or from those that run parallel to it, should be avoided.
2. Landscape installations should be executed that will buffer the canal and towpath from adjoining property.
3. Land should be acquired to assure a width for the Canal Park that is adequate to create a sense of separateness from the man-made world.

### **PRINCIPLE:**

*As a multiple-use resource, each of the Canal Park's primary roles must be given equal importance.*

The different roles of the canal—as a water supply system, a recreation site, historic site, natural area, and means of enhancing urban areas—are not to be ranked in importance so that compromises can be made. Compromises do not have to be made at all; accommodation of the equal importance of each use is the guide.



Alexander Road, Princeton. In 1984-85 the Water Supply Authority removed 650,000 cubic yards of silt from the canal. It was the most comprehensive dredging project of the century for the D & R. As a result the canal flows more freely, making it a far better water supply system, recreation site, and fish habitat.

### OBJECTIVE:

1. Any development of the Canal Park should accommodate the canal's historical qualities, its function as a recreation site, water supply system, and its role as a nature preserve.

### PRINCIPLE:

*The canal is a water supply system.*

The Delaware and Raritan Canal is a vitally important source of water for central New Jersey. The New Jersey Water Supply Authority has the responsibility of maintaining the canal as a source of water. At present there are contracts for the sale of 70.498 million gallons of canal water per day; of this total 64.7 million gallons are used for municipal water supplies, 4.7 million gallons for industrial use, and the rest is for fire standby and agricultural use. Because of the importance of the canal as a source of potable water, the integrity of the canal as a water conduit and the quality of the canal water are of great concern to the Commission.

Although the Canal Commission's primary interest in water is focused on the quality and quantity of water in the canal, its interests encompass a much wider field. The quality and quantity of every stream that enters the Canal Park is also of interest, as is the level of the water table and the quality of the ground water. The Commission wants to establish and maintain a water system in the park that is pleasant for its own sake and that will support a healthy ecosystem. Changes in the quality or quantity of water—either surface water or ground water—will have a dramatic effect on the biologic system in the Canal Park.

## OBJECTIVES:

1. The integrity of the canal as a structure which carries water must be protected.
2. The quality of the water that enters the Canal Park—whether from a point source, overland flow of storm water runoff, or from ground water exchange—must be suitable for a source of drinking water.
3. Other uses or development projects must be compatible with the need to operate and maintain the canal as a water supply system.

## PRINCIPLE:

*The Canal Park is a site for recreational activities.*

Several issues will be considered in the Commission's proposals for recreational development. First among these is the need to provide for a wide range of recreational opportunities that are appropriate to a linear park. Activities like boating, hiking, bicycling, picnicking, and camping are all suited to a long, thin park with a canal in its center. Recreational activities such as tennis, basketball, or baseball may not be incompatible with the Canal Park in some cases, but the Commission will not concentrate on these kinds of activities. Another important consideration is that recreational development of the Canal Park must be closely tied to the park's environmental types; different kinds of recreational development will be planned for urban, suburban, and natural environments.

Another issue that will be considered in developing the plans for the Canal Park is the present and planned use of privately-owned land adjacent to the park. The Commission is convinced that the Canal Park can be



The Canal and Lake Carnegie, Plainsboro Township. Lake Carnegie, which is used by boaters, fishermen, and ice skaters, is one of the region's resources that enhances—and is enhanced by—the Canal Park.

an asset to each municipality through which it passes, as well as an asset to the State. This means that municipal zoning ordinances, master plans, and present land use in the park's surrounding communities must be in harmony with the potential utilization of the Canal Park.

The Commission also intends to be careful that recreational facilities that are needed in the central New Jersey region are given special consideration. Every few years the New Jersey Department of Environmental Protection publishes an analysis of the facilities that are available and the needs for people in each region of the State. This information, available in the STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN (SCORP), will be used as a guideline for setting priorities for recreational development of the Canal Park.

## OBJECTIVES:

1. Development of recreational facilities should be compatible with the character and with the applicable "Canal Environment", as designated in Chapter Two of the MASTER PLAN.
2. Recreational development should be aimed at encouraging the widest possible range of compatible recreational activities.
3. Recreational development and access are to be allocated to all parts of the Canal Park in order to avoid concentrating use at a few locations.
4. Adjoining recreational resources should be connected to the Canal Park for mutual enhancement. The development of additional recreational resources adjoining the park is to be encouraged.



Near Griggstown, Franklin Township. The canal provides a tranquil site for canoeists. (photo courtesy of Linda Long)



Prallsville Mills, Stockton. The historic character of the Canal Park is greatly affected by its context. The Prallsville Mills historic district reinforces the sense of the canal as a historic structure.

## PRINCIPLE:

*The Canal Park is a historic resource.*

In 1973 the canal and seventeen structures relating to the canal's 19th century operation were placed on the National Register of Historic Places. But the historic character of the D & R Canal is more than just the locks, milestones, canal houses, spillways, and other features of the canal structure. The canal's immediate surroundings—the communities through which it flows—is also an important part of its historic character. The canal's historic setting is surprisingly intact. There are ten nationally registered historic districts along the canal's route, several other districts that are eligible for registration and many individual historic buildings.

By developing the Canal Park in such a way that an appreciation for the historic character of the canal and for its setting is emphasized, the Commission hopes users of the park will learn and value a part of the State's historic heritage. The Commission also believes that by evoking the canal's historic past, the Canal Park will provide a meaningful context within which neighboring historic sites can be enhanced. One of the great impediments to the enjoyment of a historic site is that usually 20th century development has caused the site to lose its original relationship to its environment, leaving it to stand alone as a relic of a time that cannot be recaptured. The Canal Park can be a means of relating these sites to an environment which can be meaningful and will be a broader context in which to view the sites than is provided by their own, usually diminished, plot of land.

## OBJECTIVES:

1. All repair, maintenance, and development work on the canal and its associated structures should conform to the Secretary of the Interior's Standards and the Guidelines for Rehabilitation.
2. The Canal Park's historic character is derived as much from the context through which the canal flows

as from the canal's structures. That context—the area that can be seen from the canal and its towpath—should be preserved in a manner that reflects its historic nature.

3. The role that the canal played in the history of New Jersey should be interpreted for public edification.
4. The Canal Park should provide an appropriate context for nearby historic structures, landscapes, or sites.

#### **PRINCIPLE:**

*To the extent that is possible and practical, the Canal Park is an area that should be maintained in its natural state.*

The Canal Park passes through two physiographic provinces (the Piedmont and the Inner Coastal Plain) and a wide range of habitats, including marsh, swamp, meadow, and upland forest. It is a goal of the Canal Commission to conserve and to display as much variety in the park's regional habitat as is suitable. The special linear quality of the Canal Park makes it possible for the park to illustrate the ecosystems that thrive in each habitat, whether it be the forests of a floodplain that have been undisturbed for a hundred years or the collection of hardy survivors in the narrow strip between the canal and the railroad bed. By setting such a broad goal for conservation, the Commission feels that the park user can follow the changes in vegetation as the habitat changes from upland to lowland, from forest to meadow, and from country to city.

There is another important conservation role for a linear park. As development spreads through central New Jersey it usually leaves islands of natural areas in its wake. Development does not systematically replace all of the natural vegetation in a region but it encircles and shrinks these natural areas. The result is that it is harder for organisms—both animal and plant—to migrate. In animal populations this may lead to inbreeding that will result in genetic degradation. In vegetation species this may mean that a plant species that dies will not be replaced, resulting in a diminished ecological variety. A vital conservation goal for the Canal Park is that it acts as a corridor for the migration and for the establishment of a variety of both animal and plant species. In order to accomplish this goal, the park will have to have a wide enough corridor to support a full range of forest edge and forest interior species.

One should not take this principle to its furthest extreme, however, and assume that any natural process that occurs in the park should be left alone. Sections of the park must be mowed in order to accommodate recreational use. Noxious weeds like poison ivy need to be kept under control. Trees and shrubs must be removed if they are growing in places that threaten the integrity of the water conduit or historic structures.

Finally, it should be clear that it is important that the Canal Park serve as a safe habitat for any rare or endangered plant or animal species.

#### **OBJECTIVES:**

1. The lands and water in the Canal Park should be maintained to preserve wildlife habitats and the flourishing of natural vegetation communities.
2. The Canal Park should be a means of connecting other natural areas in the region, thereby enhancing their ability to function.
3. Rare, endangered, or threatened species of plants and animals found in the park should be carefully preserved.
4. Landscape materials used in the Canal Park, or used on adjoining lands, should be native to the region and appropriate for their specific habitat except where historical landscapes are appropriately being re-established.
5. The greatest possible variety of habitats for plants and animals should be preserved.
6. The Canal Park's role as a migratory route for plants and animals should be maintained and improved.

## **PRINCIPLE:**

*The Canal Park is a means of enhancing urban areas.*

The most intense use of the canal in the nineteenth century was in the urban areas. As the canal passed through Trenton, its banks were lined with industries, many with their own turning basin, that used the canal. The canal was carried over roads in aqueducts twice, it was bridged regularly, there were three locks, and the feeder joined the main canal. This intensity of use emphasized the man-made qualities of this very special waterway and helped to make the canal an integral part of the design of the man-made urban scene.

The Commission has been specifically charged with the challenge to develop the Canal Park as a means of enhancing urban areas; a challenge that is heartily welcomed. The key to the Commission's vision of the Canal Park in the urban areas is to recapture and to develop the canal's former aura of an intensely used man-made artifact in a man-made urban environment. There are some ways in which this will come naturally to the Canal Park. By their very definition, urban areas are places where there are rich varieties of design elements. The canal offers an exciting addition to these elements. The textural quality of the water contrasts markedly with the textures of the roads, signs, buildings, fences, cars, and fireplugs in the urban area. Yet the water also reflects the images of these features, increasing their importance. The thoughtful and exciting use of the canal as both contrast and reinforcement to existing elements is a natural way to enhance urban areas.

## **OBJECTIVES:**

1. The recreational, historical, and natural conservation objectives are all applicable to urban areas through which the canal flows and should be appropriately applied there.
2. The Canal Park should serve as a transportation route within urban areas for non-motorized vehicles and pedestrians.
3. The Canal Park should be both a boundary for urban neighborhoods and a means of connection amongst them.
4. The Canal Park should be a means of connecting urban areas with recreational areas, historical sites, and natural areas in the region beyond the urban boundary.

## **PRINCIPLE:**

*The Canal Park is an outdoor classroom to be used for public education.*

The Delaware and Raritan Canal State Park is an ideal guide to anyone who seeks an understanding of the organic structure of central New Jersey and the history of its use by man. It is an ideal education site because it is both a man-made historic structure and a natural area; because it flows through cities, suburbs, and countrysides; because it encompasses the Piedmont and Inner Coastal Plain Geologic Provinces, as well as upland and wetland plant habitats.

## **OBJECTIVES:**

1. Historical structures in the Canal Park should be presented to public view in such a manner that they interpret the history and function of the canal.
2. Paths should include interpretive material to inform the public of the historical and natural features of the park.
3. Interpretive centers at several locations along the Canal Park should be established and maintained.

## ISSUES FACING THE CANAL PARK

The issues that face the Canal Commission can most easily be looked at within the context of the four principal duties of the Commission: 1) Review State projects planned for the Canal Park or State permits issued for action in the park. 2) Prepare planning documents for the development of the Canal Park. 3) Prepare and administer a land-use regulatory program to protect the park. 4) Work with community groups to initiate actions that will benefit the park.

The first of these tasks—to review State actions in the park or State permits—has been working smoothly for a number of years. All such proposed actions or permits are reviewed for their compliance with the principles and objectives of the MASTER PLAN.

The second—the preparation of planning documents for the development of the Canal Park—has also been undertaken with success by the Commission. All of the necessary planning documents have been adopted by the Commission to provide guidance for the Park's development. The Commission will need to keep these documents up to date by periodically revising them. To do this it will be necessary to have sufficient operating funds to hire consultants. Much has actually been accomplished under these planning documents in the eleven years since the MASTER PLAN was first adopted. The process of preparing a second edition of the MASTER PLAN, in fact, has illustrated to the Commissioners and their staff that the Canal Park is a far more valuable public resource today than it was eleven years ago.

Several hundred acres of land have been acquired and added to the park, bringing the total for the Canal Park to approximately 3,550 acres. The park is not only bigger, it is more accessible. Parking areas have been enlarged or created at more than a dozen places along the park, and pedestrian bridges to the towpath have been built in four locations where the towpath was on the opposite side of the canal from the point of access.

The park is not only more accessible, it has also been greatly improved. Almost 30 miles of trail have been added. Picnic areas have been built at a number of locations. A couple of the dilapidated canal houses have been restored. Prallsville Mills has become a major cultural center with concerts, exhibits, and meetings. The Bull's Island campgrounds are improved. The Canal Park serves more people every year and is one of the Garden State's most valuable resources.

One of the most pressing issues facing the Canal Commission is the need to get more money to continue the development that is needed in order to meet public use. There are still sections of the path that need to be built. Several canal houses and other historic structures in the park are threatened with collapse if they are not repaired. More access areas are needed to keep the existing areas from becoming overcrowded. And—most obviously of all—a canal boat ride is needed. What is a Canal Park without a canal boat ride?

Money is also needed to acquire more land for the park. The Canal Commission has surveyed the entire park and produced an extensive list of property that it recommends for acquisition. This additional property would provide additional buffer in areas where there is extensive development, it would provide better access and more areas for recreational use, and it would extend the park along corridors that reach into the region, tying the Canal Park more securely to the region.

No discussion of the need for additional money can be ended, however, without pointing out that increased use and increased facilities will have to have increased maintenance and patrolling. More money is desperately needed for the State Park Service to adequately operate and maintain the Canal Park.

The third task is to administer a land use regulatory program to protect the Canal Park from the potentially harmful impacts of new development. Since 1980 the Commission has administered such a program with demonstrably beneficial results. A recent study shows that within the area affected by the Commission's regulations flooding has decreased in severity. The visual impact of projects near the park has also been greatly reduced as a consequence of standards established by the Commission.

The Commission has found, however, that the regulations adopted in 1980 do not cover all of the potentially

harmful impacts on the park. New regulations, expected to be adopted in 1989, will expand the Commission's review to cover the impact from increased traffic and the need to protect corridors along several of the streams that drain into the Canal Park. The proposed regulations also have more stringent set-back requirements for major projects that would be adjacent to the park.

The central New Jersey area is growing at a phenomenal rate. This rate may change but development of the region around the Canal Park will continue. A national magazine has just identified central New Jersey (Somerset, Mercer, and Hunterdon counties) as the second most desirable place in America to live. (Clearly the Canal Park contributed to that selection!) The need is to guide development in such a way that it does not destroy the best parts of the region.

The Canal Commission feels itself to be a critical part of that effort to guide development.

The final task is to work with municipalities, counties, and community groups to initiate actions that will benefit the Canal Park.

The Delaware and Raritan Canal has enjoyed tremendous public affection since it was opened for business in 1834. It was immediately seen by its neighbors as more than an important transportation system. It became a sixty-mile long swimming pool for local youngsters in the summer. Sunday or evening strolls along the towpath were popular. Fishing and pleasure boating were common when the canal boats were not in the way.

When the Commission was created in 1974 it quickly realized the Canal Park's greatest advantage is its ability to attract and hold people's affection. There are many difficulties connected with the management and policing of a sixty mile long park. With neighbors along its entire length who care about the park, however, it becomes possible for the understaffed Canal Park ranger and maintenance crews to carry out their difficult tasks.

Public affection for the Canal Park has gone far beyond keeping a watchful eye on it. To a very real extent, in fact, the Canal Park is a creation of citizen's groups, municipal agencies, and county organizations as much as of the State. The State of New Jersey passed a law making the canal a State Park and the State pays the cost of its maintenance. But it was the Delaware River Mill Society of Stockton who converted fifteen miles of the abandoned Belvidere-Delaware Railroad right-of-way into a path. The Lambertville Historical Society put a pedestrian bridge in their city to make the towpath continuous. The Lawrence Township Historical Society has restored and given life to the Port Mercer Canal House, just as the Meadows Foundation in Franklin has developed a vibrant community center along the canal. Other contributions have come from Boy and Girl Scouts, societies of horsemen, fishermen and gardeners. The recently formed Delaware and Raritan Greenway is working toward the preservation of a network of open space that would link the Canal Park to natural resources throughout central New Jersey. The Division of Parks and Forestry deserves a great deal of credit for adopting a management policy which is flexible enough to take full advantage of these citizen contributions to the Canal Park.

Municipalities and counties have created parks and natural areas alongside the canal to complement the character of the Canal Park.

All of this public affection and action on behalf of the Canal Park is not only a benefit, it is also a strong message to those who manage the park. Management decisions must be made in a manner that takes full advantage of the knowledge and insight of all those who wish to contribute. A management policy that would leave out the community could result in the loss of the Canal Park's greatest asset—its supporters.

Another issue facing the Canal Park is the need to harmonize municipal plans in a manner that benefits the Canal Park. Twenty-two municipalities adjoin the Canal Park, each with its own criteria for land use planning. It is essential that the Canal Commission work with these municipalities so that those planning and zoning decisions which affect the Canal Park are in harmony with the park as well as with local goals. The wrong kinds of municipal zoning decisions, or roadway decisions, could have a harmful effect upon the functioning of the entire park.

## **SECTION II**

### **Administration of the Canal Park**

## CHAPTER 4: ADMINISTERING AGENCIES

Three agencies share responsibility for the administration of the Canal Park; the Delaware and Raritan Canal Commission, the Division of Parks and Forestry within the Department of Environmental Protection and the New Jersey Water Supply Authority.

### *The Delaware and Raritan Canal Commission*

The Delaware and Raritan Canal State Park Law (c.13:13 A-1 *et seq.*), signed by New Jersey Governor Brendan Byrne on 10 October 1974, established the Delaware and Raritan Canal Commission. The Commission consists of the Commissioner of the Department of Environmental Protection, serving *ex officio*, and eight citizens of the State. Of the citizen commissioners, no more than four may be of the same political party, and there must be at least one from each of the four counties through which the canal flows. One of these eight commissioners must be a mayor of a municipality next to the canal.

The Delaware and Raritan Canal State Park Law of 1974 created a very complex relationship between the Commission and the Department of Environmental Protection. The Commission is stated to be "... in the Department of Environmental Protection ..." (c.13:13A-11a.), but the statute goes on to define the Commission in such a way that it is almost an independent agency.

The Canal Commission was given four main tasks. The first of these is to "review and approve, reject or modify, any State project planned or State permits issued in the park . . ." (c.13:13A-13d.). This means that any action in the park which requires a State permit or any action by a State agency will require review by the Commission.

The second task is to "... prepare, or cause to be prepared, and . . . adopt a master plan or portion thereof for the physical development of the park . . ." (c.13:13A-13a.). The Canal Commission has recognized that master plans are more a process than a document and it has, therefore, produced a series of documents which reflect the master planning process. These are:

- Master Plan*, adopted 1977, revised 1988
- Design Guide*, adopted 1980
- Historic Structures Survey*, adopted 1982
- Historic and Recreational Development Plan*, adopted 1985
- Development Guide*, adopted 1985

The third task is to produce and administer a plan for the regulation of land use that will protect the park from harmful adjacent development. This task is accomplished through the delineation of an area on either side of the Canal Park within which development would produce an impact on the Canal Park. This area is called the review zone and, "The Commission shall approve all State actions within the review zone that impact on the park, and insure that these actions conform as nearly as possible to the Commission's master plan and relevant local plans or initiatives." (c.13:13A-14b.). Further, "The Commission shall review and approve, reject, or modify any project within the review zone." (c.13:13A-14c.). The key word in that last sentence is clearly the word "project". The same paragraph of the Commission's enabling statute goes on to define project as "... any structure, land use change, or public improvements for which a permit from, or determination by, the municipality is required, which shall include, but not be limited to, building permits, zoning variances, and excavation permits".

The Canal Commission is, therefore, a regional planning agency with genuine planning authority. This authority will be restricted to those areas that could have an impact on the Canal Park and the Commission will only be concerned with those aspects of proposed development that relate to the Canal Park.

The fourth task is to "... act in support of local suggestions or desires to complement the park master

plan. Consultation, planning, and technical expertise will be made available to local planning bodies that wish to implement land-use policy to enhance the park area." (c.13:13A-13c.)

### *The Division of Parks & Forestry*

The Delaware and Raritan Canal State Park is owned by the State of New Jersey's Department of Environmental Protection, to be maintained and operated as a State Park by the Division of Parks and Forestry. Two offices for management of the Canal Park have been established; one on Bull's Island with responsibility for the portion of the canal along the Delaware River and in Trenton, and one at Blackwell's Mills (Franklin Township) for the management of the rest of the Canal Park. Maintenance workers and park rangers operate out of each office, and the Park Superintendent has an office at Blackwell's Mills.

The Division of Parks and Forestry, as the Canal Park's "owners", has management responsibility for all park development or land acquisition programs for the park.

### *The Water Supply Authority*

The canal and the land that is part of the canal structure (referred to as the "Transmission Complex") is leased to the New Jersey Water Supply Authority so that they can operate the canal as a water supply system. The lease, of course, requires that the property included in the Transmission Complex be continued as a State Park and as a historic site.

The Water Supply Authority is responsible for projects that rebuild, repair, or restore canal structures. In 1984-85 thirty-two miles of the canal were dredged. Several culverts carrying streams under the canal have been rebuilt; waste gates, spillways and aqueducts have had construction projects, and canal houses have been repaired to house the Water Supply Authority's field staff.

### *Other State Agencies*

A number of other State agencies contribute to the management of the Canal Park. This list includes:

1. **Green Acres:** The Green Acres/Recreation Program supplies technical information about the State's open space and recreation needs and supplies. This office also administers the programs for land acquisition to enlarge the Canal Park.
2. **Office of New Jersey Heritage:** The Office of New Jersey Heritage is part of the Department of Environmental Protection's Division of Parks & Forestry. Because the D & R Canal is listed on the State Register of Historic Places, Canal District projects undertaken by public agencies or requiring permission of the Division of Parks and Forestry, must have prior authorization from the Commissioner of the Department of Environmental Protection. All applications must be reviewed by the New Jersey Historic Sites Council, which makes recommendations to the State Historic Preservation Officer. The Office of New Jersey Heritage serves as staff to the Council and the Commissioner.
3. **Division of Fish, Game & Wildlife:** In 1987 approximately 17,000 trout of catchable size were stocked in the D & R Canal by the Division of Fish, Game & Wildlife.
4. **New Jersey Department of Transportation:** Most of the vehicular bridges over the canal are maintained by the Department of Transportation.
5. **State Planning Commission:** The State Planning Commission is preparing a plan to guide the development and redevelopment of the State.

## **SECTION III**

### **Resource Inventory of the Canal Park**

## CHAPTER 5: WATER

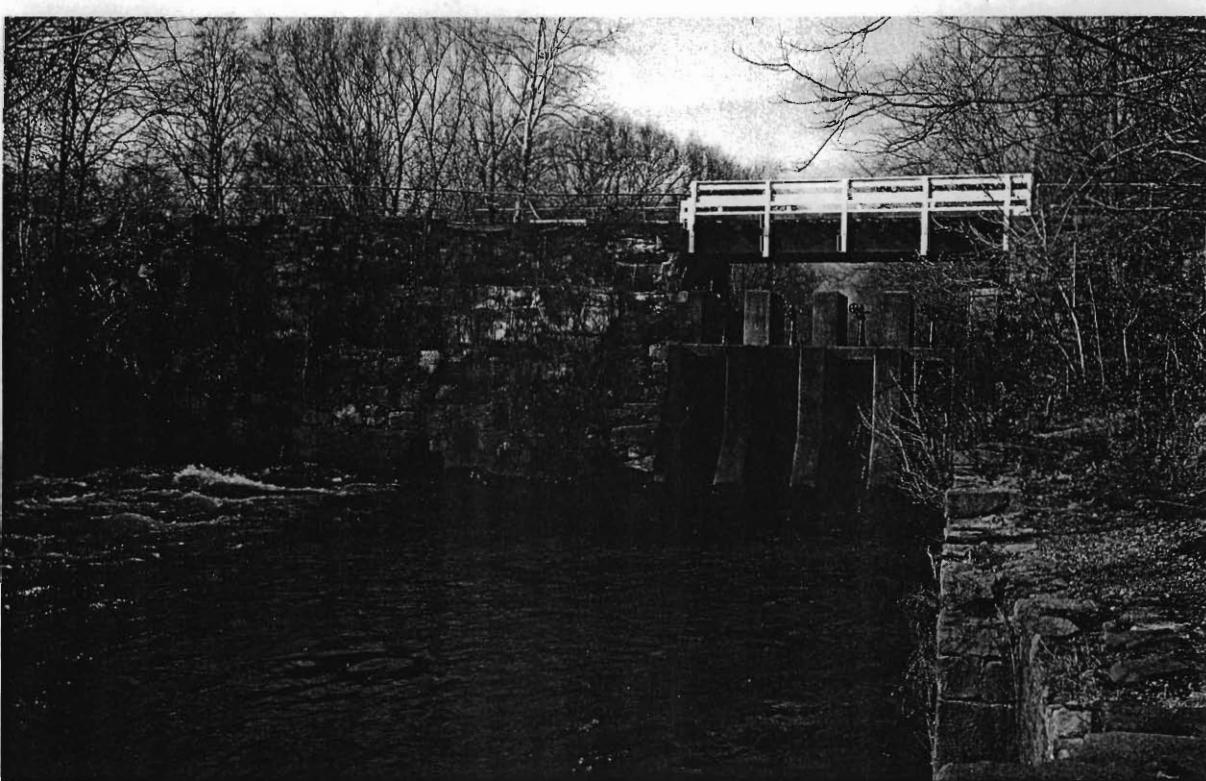
### *The Sources of Canal Water*

The Delaware River at Raven Rock, six miles above Lambertville, is the original source of water for the canal. This water is joined, however, by water from twenty-four streams that are tributary to the canal and seventy-six drainage areas from which overland flow comes directly into the canal. This overland flow is sometimes less "overland" than at other times since many areas that drain into the canal actually come through a network of storm sewers.

Of the twenty-four streams that are tributary to the canal, all but four are quite small. The Wickecheokee Creek is the largest of these four, with a drainage basin that is almost twenty-six square miles. The Lockatong Creek is a close second among the canal's tributaries, with a twenty-four square mile watershed. Duck Pond Run (5.7 square mile watershed) and an unnamed stream in Franklin Township (2.6 square miles) are the other significant tributaries.

During floods, however, many of the streams that normally run alongside or go under the canal overtop the canal banks and contribute water to the canal. The Millstone River, for example, frequently floods into the canal at several places.

There are also times when water is pumped into the canal from the confluence of the Millstone and the Raritan Rivers. These pumps are used whenever there is insufficient flow in the canal to supply water to the water customers.



Bull's Island, Delaware Township. The principle source of water for the canal is the Delaware River, which enters the canal at Bull's Island. A massive structure regulates the flow at that location, to assure that the right amount of water is let into the canal.



Ten Mile Run Culvert, Franklin Township. Many streams are directed under the canal in culverts that were built in 1831-34 when the canal was constructed. The Ten Mile Run Culvert was recently rehabilitated.

Another possible source of water would be from groundwater flow. Most streams maintain their flow through infiltration of groundwater into the waterway. There are doubtless some places where that occurs along the canal, but it is not clear where or to what extent. When thirty-two miles of the canal were dredged in 1984-85 it became clear that most of the canal is well clad with a clay lining. The clay prevents the loss of canal water as well as the intrusion of groundwater.

The table entitled "Watersheds of the Canal" locates all of the canal's waterways.

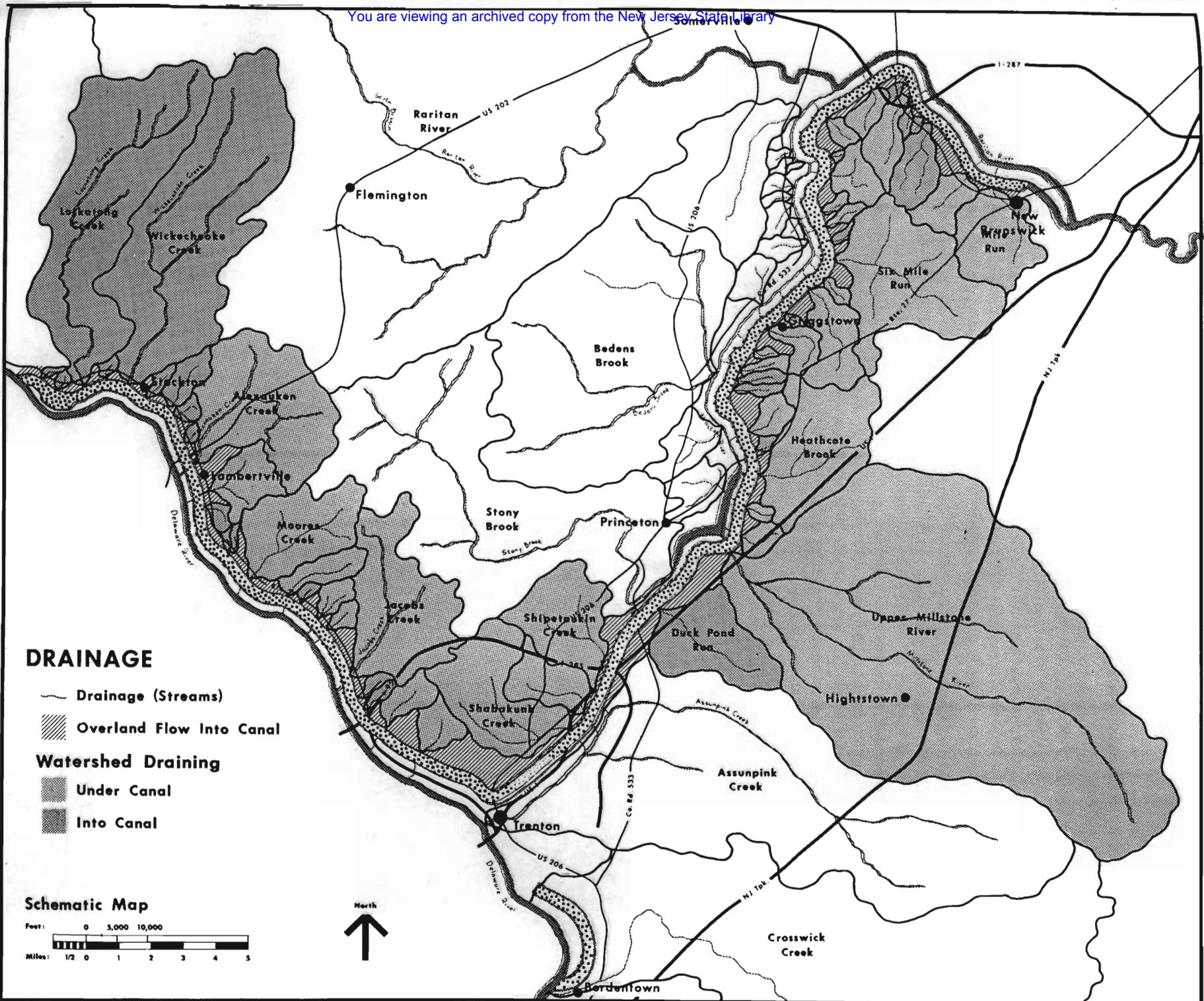
#### *Customers for D & R Canal Water*

People drink it and bathe in it. Factories cool their machines with it. Farmers grow crops with it. Firemen put out fires with it. The Mercer County Park Department even makes snow out of it in the winter to coat their ski slope. Delaware and Raritan Canal water is an extremely valuable commodity.

The table entitled "Summary of Water Use Contracts" identifies all of the customers for canal water as of January 1, 1988.

#### *Water Quality*

The Delaware River water that enters the canal is of very high quality. As this water travels the sixty miles of the canal, and is mixed with water from other sources, it is gradually degraded but remains quite good. The principal customers for the canal water all withdraw at locations near the end of the canal and they report that the canal water is a reliable source of water of good to excellent quality with a minimum of treatment required before it is delivered to almost one million people in the State.



Studies of the quality of the water in the canal have generally focused on problems associated with sediment build-up in the canal. The 1984-85 dredging of 32 miles of the canal has had a greatly beneficial impact on that problem.

Observers of the canal note that every summer the canal surface in the downstream portions becomes covered with duck weed, a green algae. The duck weed often backs up behind bridge piers, locks, or other obstacles and gives the impression that the canal water is both unclean and unmoving. Neither conclusion is accurate. The duck weed is evidence that the water contains higher than desirable levels of phosphates and nitrates—a consequence, chiefly, of fertilizers used by farmers and suburban homeowners—but it is not harmful.

Since 1980 the Delaware and Raritan Canal Commission has administered a land use regulatory program designed to protect the canal from the potentially harmful impacts of new development. Protection from stormwater runoff has been the chief feature of this regulatory program. A limited study was carried out by the Commission staff to determine the effectiveness of their program of controlling stormwater runoff by creation of detention basins. Using 1980 as the base year, the staff compared data for 1987 which was the most recent year for which data was available. Rainfall data was compared to Millstone River flow and the result was that the implementation of modern stormwater management practices has reduced the severity of flooding within the Commission's review zone.

## WATERSHEDS OF THE CANAL

Location (Mileage)	Watershed Area (Sq. Miles)	Watershed Areas	
		1. Streams under Canal	2. Streams Tributary to Canal
-0.83-0.33	0.114	3. (-0.71 Canal Intake)	
-0.33	0.162	2.	
-0.33-0.07	0.023	3. (0.00 Raven Rock Lock)	
0.07	0.240	2.	
0.07-1.32	0.390	3.	
1.32	24.210	2. (Lockatong Creek)	
1.32-1.98	0.227	3.	
1.98	0.449	2.	
1.98-2.90	0.007	3.	
2.90	25.839	2. (Wickecheoke Creek)	
2.90-3.12	0.247	3.	
3.12	0.376	2.	
3.12-3.98	0.382	3.	
3.98	1.149	2.	
3.98-4.23	0.006	3.	
4.23	0.449	2. (Brookville Creek)	
4.23-5.03	0.192	3.	
5.03	0.149	2.	
5.03-5.76	0.152	3.	
5.76	14.899	1. (Alexaukin Creek)	
5.76-6.03	0.010	3.	
6.03-6.76	0.249	3.	
6.76	3.752	1. (Swan Creek)	
6.76-7.25	0.132	3.	
7.25	0.558	2.	

<b>Location (Mileage)</b>	<b>Watershed Area (Sq. Miles)</b>	<b>Watershed Areas</b>	
		<b>1. Streams under Canal</b>	<b>2. Streams Tributary to Canal</b>
7.25-8.80	0.317	3.	
8.80	0.227	2.	
8.80-8.91	0.009	3.	
8.91	0.207	2.	
8.91-9.75	0.123	3.	
9.75-10.11	0.055	3.	
10.11	9.390	1. (Moores Creek)	
10.11-11.43	0.677	3.	
11.43	2.031	1. (Fiddlers Creek)	
11.43-11.68	0.119	3.	
11.68	0.126	2.	
11.68-11.93	0.055	3.	
11.93-12.06	0.142	3.	
12.06-12.11	0.058	3.	
12.11	0.994	1.	
12.11-13.12	0.113	3.	
13.12	0.486	1.	
13.12-14.57	0.555	3.	
14.57	12.856	1. (Jacobs Creek)	
14.57-15.01	0.110	3.	
15.01	0.261	2.	
15.01-15.38	0.072	3.	
15.38	0.414	2.	
15.38-16.19	0.271	3.	
16.19-16.56	0.131	3.	
16.56	1.263	1. (Scudders Falls)	
16.56-17.25	0.303	3.	
17.25-17.92	0.148	3.	
17.92	1.686	1. (Gold Run)	
17.92-18.55	0.069	3.	
18.55-18.61	0.159	3.	
18.61-18.80	0.027	3.	
18.80-18.86	0.538	3.	
18.86-19.11	0.010	3.	
19.11-19.17	0.092	3.	
19.17-19.42	0.030	3.	
19.42-19.48	0.278	3.	
19.48-20.94	0.814	3.	
20.94-22.47	1.057	3.	
22.47-23.50	0.287	3.	
23.50-24.25	0.179	3.	
24.25-24.47	0.066	3.	
24.47	13.037	1. (Big Shabakunk Creek)	
25.54	4.128	1. (Little Shabakunk Creek)	
26.36	7.652	1. (Shipetaukin Creek)	
26.36-28.50	0.524	3. (End of Basin; 28.50 Port Mercer Dike)	
28.50-28.93	0.212	3. (Beginning of Basin; 28.50 Port Mercer Dike)	

<b>Location (Mileage)</b>	<b>Watershed Area (Sq. Miles)</b>	<b>Watershed Areas</b>
28.93	5.742	1. Streams under Canal
28.93-30.94	0.506	2. Streams Tributary to Canal
30.94-31.81	0.473	3. Local Drainage and Overland Flow Tributary to Canal
31.81-32.75	0.376	
32.75	98.655	2. (Duck Pond Run Creek)
		3.
		3.
		3.
32.96	0.324	1.
34.09	0.499	1.
34.09-34.90	0.083	3.
34.90	9.309	1. (Heathcote Brook)
34.90-35.66	0.147	3.
35.66	0.133	2.
35.66-36.02	0.100	3.
36.02	1.103	1.
36.02-36.75	0.376	3.
36.75-37.44	0.299	3.
37.44-37.69	0.373	3.
37.69	0.271	2.
37.69-37.89	0.020	3.
37.89	0.449	2.
37.89-38.19	0.175	3.
38.19	0.237	1.
38.19-38.94	0.296	3.
38.94	0.277	1.
38.94-40.12	0.076	3.
40.12	2.110	1. (Simonson Brook)
40.12-41.06	0.581	3.
41.06	0.108	1.
41.06-42.04	0.228	3.
42.04	4.345	1. (Ten Mile Run Creek)
42.04-42.54	0.083	3.
42.54	0.373	1.
42.54-43.42	0.625	3.
43.42	16.189	1. (Six Mile Run Creek)
43.42-43.84	0.080	3.
43.84	0.179	2.
43.84-44.29	0.115	3.
44.29	0.459	1.
44.29-44.78	0.088	3.
44.78	0.197	1.
44.78-46.11	0.883	3.
46.11	1.868	1.
46.11-46.57	0.088	3.
46.57	0.204	1.
46.57-48.20	0.549	3.
48.20	0.667	1. (Zarephath Creek)
48.20-50.55	0.509	3.
50.55	1.211	1. (Randolph Brook)
50.55-52.19	0.652	3.

Location (Mileage)	Watershed Area (Sq. Miles)	Watershed Areas		
		1. Streams under Canal	2. Streams Tributary to Canal	3. Local Drainage and Overland Flow Tributary to Canal
52.19	0.235	2.		
52.19-52.80	0.079	3.		
52.80	3.145	1.		
52.80-53.15	0.049	3.		
53.15	0.354	2.		
53.15-53.64	0.023	3.		
53.64	0.090	2.		
53.64-53.85	0.016	3.		
53.85	2.628	2.		
53.85-55.60	1.158	3.		
55.60	2.700	1. (Seely Brook)		
55.60-56.53	0.291	3.		
56.53	6.496	1. (Mile Run Creek)		
56.53-58.47	0.228	3. (58.47-Deep Lock; City of New Brunswick; End of controlled Canal waterway)		

Total Watershed Areas—Raritan Basin

1. Streams under Canal	= 150.476 Sq. Miles
2&3. Tributary to Canal	= 19.918 Sq. Miles
Combined Total Areas	= 170.394 Sq. Miles

Total Watershed Areas—Delaware and Raritan Basins Combined

1. Streams under Canal	= 222.953 Sq. Miles
2&3. Tributary to Canal	= 84.154 Sq. Miles
Combined Total Areas	= 307.107 Sq. Miles

## SUMMARY OF WATER USE CONTRACTS

as of January 1, 1988

(Million Gallons per Day—mgd)

### Delaware and Raritan Canal

User	Potable	Industrial	Irrigation	Total Allotment
Lambertville Water Company	0.200			0.200
Mercer County Park Commission			0.100	0.100
Trenton Country Club			0.250	0.250
Fermenta Animal Health Co.		0.667		0.667
<b>Total Delaware Basin</b>	<b>0.200</b>	<b>0.667</b>	<b>0.350</b>	<b>1.217 mgd</b>
Vaccaro Brothers			0.200	0.200
Mercer County Park Commission			0.135	0.135
Princeton University (Forrestal)		1.000		1.000
Princeton Nurseries			0.300	0.300
North Brunswick Township	8.000			8.000
Selody Sod Farms, Inc.			0.100	0.100
Elizabethtown Water Company	32.000			32.000
Union Carbide Corporation		0.720		0.720
East Brunswick Township	4.000			4.000
City of New Brunswick	10.500			10.500
Johnson & Johnson		2.326		2.326
Middlesex Water Company	10.000			10.000
<b>Total Raritan Basin</b>	<b>64.500</b>	<b>4.046</b>	<b>0.735</b>	<b>69.281 mgd</b>
<b>Total Delaware &amp; Raritan Canal</b>	<b>64.700</b>	<b>4.713</b>	<b>1.085</b>	<b>70.498 mgd</b>

## SUMMARY OF FIRE STANDBY CONTRACTS

### Delaware and Raritan Canal

User	Withdrawal Capacity (gpm)
Friction Division Products, Inc.	1,500
Union Carbide Corporation	4,700

## CHAPTER 6: PHYSIOGRAPHY, GEOLOGY, AND SOILS

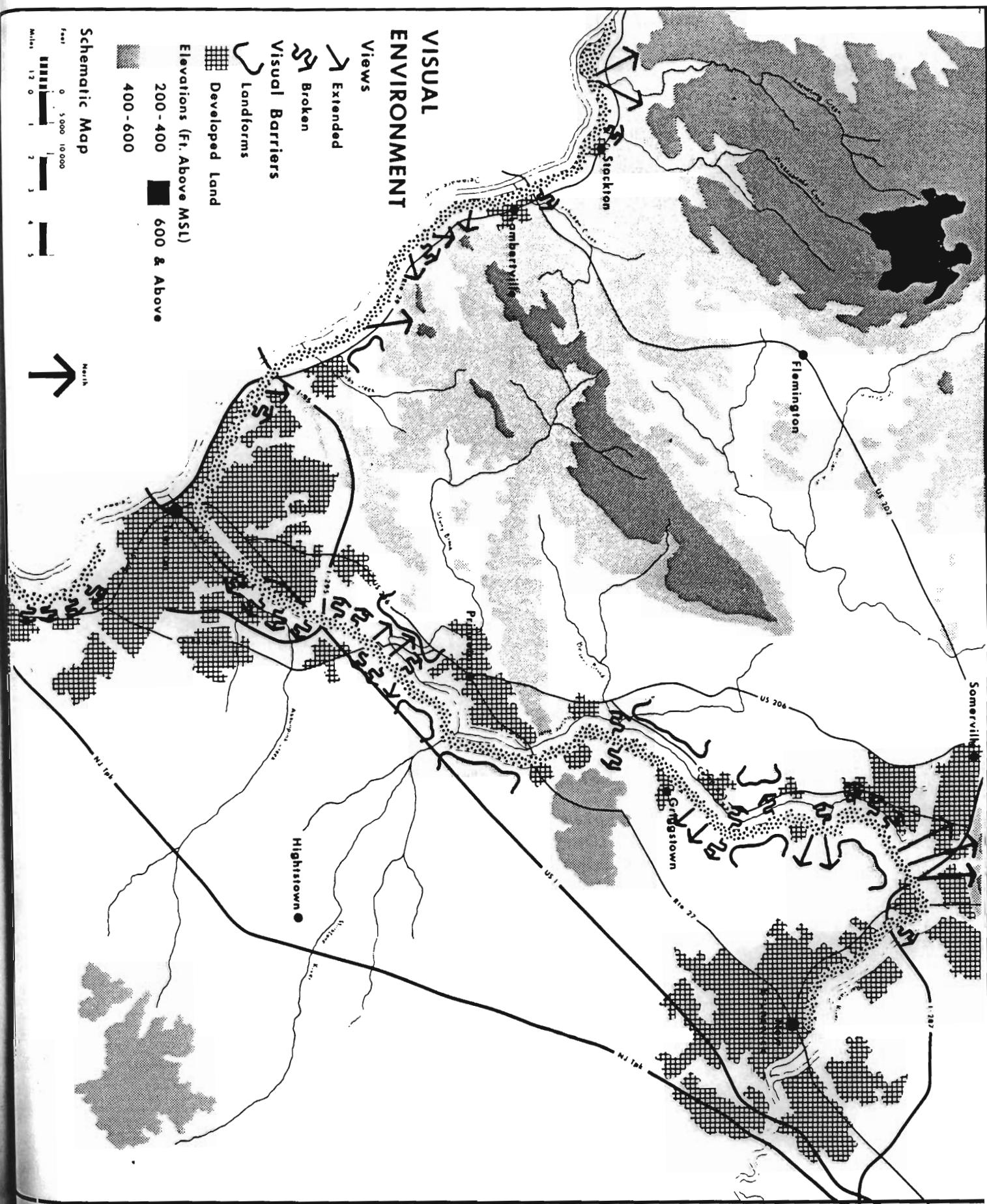
New Jersey is composed of five different physiographic provinces, two of which—the Piedmont and the Inner Coastal Plain—are included in the Canal Park's environment. The line dividing these two provinces starts at the Delaware River just north of Trenton and runs north eastward to the Raritan Bay on a path very close to that of the canal. Nearly all of the feeder is, therefore, in the Piedmont province while the main canal is in both. That portion of the main canal south of approximately Kingston is in the Inner Coastal Plain while the rest is in the Piedmont.

The Piedmont of New Jersey is a lowland plateau that extends from the Hudson River in New York through Pennsylvania. It is detached from similar formations that extend northward into Connecticut and Massachusetts and southward into Maryland and Virginia. The Piedmont is principally composed of shale, sandstone, and argillite formations that are typically colored brownish red. It is flat in some areas but it is mostly rolling with gentle slopes except in those areas where rivers have cut sharp valleys. The Piedmont has several different kinds of rock formations and different kinds of glacial deposits, resulting in a variety of soil types within the area.

New Jersey's Inner Coastal Plain is also part of a landform that extends well beyond the State's borders. The Coastal Plain extends northward through Long Island to Cape Cod and southward all the way into Mexico. The Inner Coastal Plain is a low flatland which originated at a time when it was under the ocean and received deposits of clay, silts, sands, and gravels. This province is also characterized by glacial deposits of sand and gravel. As a result of these differing processes of development the soils of the Inner Coastal Plain are quite



Provinceline Road, Lawrence Township. The canal follows the flood plains of rivers and creeks for its entire length. The immediate surroundings have the character of a river valley, whether the canal is in the Piedmont or the Inner Coastal Plain physiographic province.



varied—although they are generally fertile. Because there is a ridge that separates the Inner Coastal Plain from the Outer Coastal Plain, the streams of this province run away from the coast—toward the Delaware River or the Raritan Bay.

The area immediately around the Canal Park changes from the hilly uplands of the Piedmont along the feeder to the flat plains of the Inner Coastal Plain that characterize most of the main canal. Yet despite this dramatic—and quite evident to the park user—difference between the two sections, there is a very important common bond. Nearly all of the canal is immediately bordered by a river. The feeder, of course, runs along the Delaware. The main canal is neighbored by several streams; the Assunpink and Stony Brook in Mercer County, and the Millstone and Raritan Rivers in Somerset and Middlesex Counties all border the canal. This means that the Canal Park itself is extremely flat. The feeder canal drops less than twenty feet in its twenty-two mile course. The main canal from Trenton to New Brunswick drops a little more than fifty feet in its thirty-seven mile course.

The United States Soil Conservation Service has mapped and analyzed the soils for the entire canal region. Their work, presented in separate books for each county, will be relied upon by the Commission for guidance in development of the Canal Park and in the Commission's review zone work.

## CHAPTER 7: VEGETATION

In 1973, Fritts Golden, a planner who has worked on several projects related to the canal, wrote a general description of vegetation types along the canal and it is a useful introduction to the subject. The following material quotes freely from his work, presented in an unpublished report entitled "The Delaware and Raritan Canal: The Nature of its Surroundings".

The vegetation of the canal region can be divided into two broad categories: upland and floodplain-marsh. The upland is a mixture of hills, valleys, and flatlands above the areas subject to periodic floods. This upland area, due to the climate, physiography, and soils of the region, provides a moist environment for vegetation. The floodplain and marsh areas of the region occur along the waterways and canal. Subject to frequent floods and standing in close proximity to water, these areas are very moist. The floodplains are only periodically inundated, while the marsh areas are under water most, if not all the time.

As has been stated elsewhere, most of the length of the canal is in the floodplain of an adjoining river. Further, the abandoned section of the main canal—from Bordentown to Trenton—is surrounded by a freshwater marsh. Most of the vegetation in the Canal Park, therefore, is of the floodplain, or locally, of the marsh type. Because of the dynamics of floods, there is some variation in the nature of the floodplain. Floods tend to deposit their heavier and coarser materials along the river margin. As the flood continues to spread across the plain, the water continues to lose energy. The capacity to carry sediment is reduced, and the fine-grained materials such as silt and clay settle at some distance from the stream channel. In this way a natural levee of better drained coarse material builds along the plain nearest the waterway (the outer plain). The plain farther from



Typical scene of trees leaning over the canal.

the waterway (the inner plain) is generally lower and damper. Beyond the floodplain is a terrace area leading to the upland.

Along the higher outer plain section of the floodplain are to be found such trees as willow, river birch, sycamore, and the introduced species, box elder. The lower inner plain area tends to support ash, pin oak, silver maple, swamp white oak, red maple, elm, and black gum with occasional instances of tulip tree, sycamore, willow, and others. The most common shrub of the floodplain is spicebush, with witch hazel, arrowwood, viburnums, and others widespread. Common herb species are sensitive fern, touch-me-not, mayapple, jack-in-the-pulpit, spring beauties, trout lilies, and cardinal flowers. In areas where the natural vegetation has been disturbed there is frequently an abundance of vines such as poison ivy, Virginia creeper, Japanese honeysuckle, bittersweet, and wild grape.

Bull's Island is an excellent example of floodplain vegetation which has been in place for some time. Huge specimens of sycamore and silver maple can be seen, with some tulip, elm, ash, walnut, locust, and box elder.

Small marshes occur along the length of the canal, and are especially noticeable along its central reach. An easily reached marsh occurs south of Princeton, near the Institute Woods, where the water company maintains wells and a pumping station. The marshes along the canal support typical wetland vegetation but the types and numbers vary greatly from marsh to marsh. Many of the marshes have no well-defined borders. Alder or willow sometimes border these areas. Arrow-arum, duckweed, blue flag, sweet-flag, lily pad, cattail, bulrush, arrow vine, tear-thumb, and cut-grass occur in or around the marshes. During the winter the vegetation dies back, leaving shallow, weedy lakes. By summer, the water is all but obscured with thick growth.

Upland forests, when mature, have a double canopy layer above the shrub and herb layers. The upper level of the canopy reaches about 80-90 feet above the ground and is a mixed oak forest with red, white, and black varieties of oak predominating. Species of trees occurring less frequently in the mixed oak forest are hickories, red maple, sugar maple, white ash, tulip tree, beech, black cherry, sweet birch, black gum, and elm. Many of these are the same species found on the moist lowlands; this is because they have a fairly broad habitat range and because the uplands of the Piedmont in the vicinity of the canal tend to have moist soils.

Below the upper canopy stands a group of trees that reach 30-40 feet above the ground. This lower canopy in the mature forests includes mostly flowering dogwood, with some locally common occurrences of hop hornbeam, sassafras, and ironwood tree.

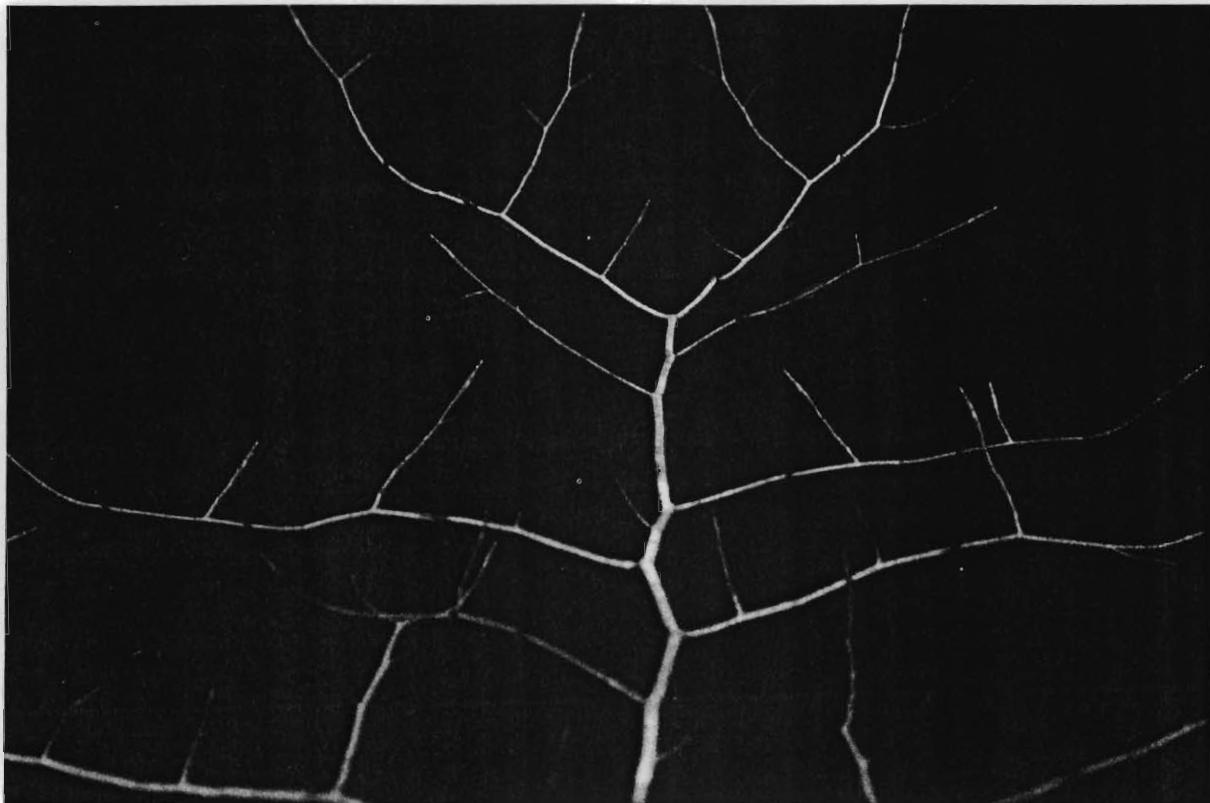
The shrub layer of the upland forest includes maple-leaved viburnum, black haw, arrowwood, spicebush, witch hazel, beaked hazel, and red and grey dogwood. The herb layer has a seasonal aspect to it and varies somewhat with location. The principal spring herbs tend to be may apple, violets, spring beauties, anemones, jewelweed, jack-in-the-pulpit, Solomon's seal, and wild sarsaparilla. The late summer and fall sees the herb layer containing asters and goldenrod as well as various grasses, sedges, and ferns.

The Hutcheson Memorial Forest of Rutgers University, located between East Millstone and New Brunswick, is a typical Piedmont mature mixed oak forest. Herrontown Woods, near Princeton, is also a maturing upland mixed oak forest with a dominance of red, black, and white oaks. Because of the local slope and soil conditions, which make it a moist area, the tulip tree and the sweetgum, typical lowland species, are common here.

It should be noted that few of the trees we have mentioned confine themselves to one area. Rather, their frequency changes from area to area and between floodplain and upland.

The canal, as a man-made waterway, causes some special variations in the usual configuration of floodplain, marsh, and upland vegetation. The streams in the area flow down a rather steady slope but the canal flows in a stair-step fashion, so there are areas where the canal and streams are at nearly the same elevation and there are other areas where the canal is considerably higher than adjacent waterways. Thus, some areas along the canal bank will be more typical of floodplain than others. Owing to the general abundance of water and to the similarity in the soils, there is no immediately obvious reflection of this in the composition of the vegetative

cover. A second feature the canal affects is local drainage. Along much of its central reach, a marsh has developed in a long, often very narrow, strip along the streamward embankment of the canal. Overland runoff, flood, and rain waters tend to collect here, giving it a marsh character. In addition, the floodplain on the upland side of the canal has been cut off from most floods. Indeed, for much of its length, the elevated canal banks and paralleling railways and highways serve to form the margin of the flood zone.



Beech tree in early spring.

## CHAPTER 8: ANIMAL LIFE

An essential part of the ecosystem of the Canal Park is the animal life in the park. The Commission would, therefore, like to have information about management techniques that could lead to the enhancement of the Canal Park as a home for animals. Unfortunately, a wildlife survey has never been taken for the Canal Park. Specific information about birds in the Canal Park and about fish in the canal is available but the Commission could not obtain detailed information about other kinds of animals. A careful observer in the Canal Park will be able to see that it abounds in squirrels, that deer frequently use the towpath as their own trail, and that, despite eradication efforts that have persisted since the canal opened in the 1830's, muskrats still inhabit the canal's banks.

One can also feel confident in making guesses at the animal life in the park based on the nature of the vegetation. Surely the heavily wooded sections of the Canal Park in Hunterdon, Mercer, and Somerset Counties support opossums, raccoons, and skunk. Many of the meadows are doubtless the homes of cottontail rabbits, red fox, and woodchuck. In what numbers these animals exist and what should be done to protect them will be subjects for future work. Three things must be present in an environment in order to have animals live there—water, food, and shelter. Water is, of course, always present in the Canal Park. The Commission will try to encourage the kinds of planting in the park which will provide a wide range of shelter and food for local animals.

### *Fish in the Canal*

An 87 year old neighbor of the Canal Park has reported that when he was a young man he once saw the locktender gaff a sturgeon trapped in the Griggstown lock. The sturgeon had evidently entered the canal at Bordentown (there were sturgeon in the Delaware River in the early 20th century) and somehow managed to climb through the seven locks up to Trenton and then down through the Kingston lock before being caught at Griggstown. The Canal Commission is not, however, dreaming of a thriving Delaware and Raritan caviar business.

The canal has, however, long been a popular spot for fishermen and the Commission expects it to remain popular.

The canal's aquatic environment combines the characteristics of a stream with those of a warm water lake. The current is slow, the depth of the water exceeds that of all but the State's major rivers, and the sluice gates which have replaced the locks serve as blocks for the migration of all species upstream and of many species downstream. The banks of the canal, which are generally steeply sloped, also are an important feature of the canal's environment because this kind of bank prevents spawning by nest building species such as the sunfish.

According to representatives of New Jersey's Bureau of Fisheries, the canal is a very good environment for fish. The most important species is the largemouth bass, which lives year around and spawns in the canal. The sunfish—bluegill, pumpkinseed, and redbreasted—are probably the next most important for fishing. White catfish, northern brown bullhead, white and yellow perch, and eastern chain pickerel also make their homes in the canal and provide canal anglers with reasons to spend some time along this peaceful waterway. There are two species of fish who are occasional visitors to the canal but are important game fish and should be mentioned. In the spring, shad often come into the canal from the Delaware River and can be caught in the feeder canal between Bull's Island and Scudder's Falls. Wall-eyed pike also have been caught in the canal, principally in the last part of the main canal, between South Bound Brook and New Brunswick.

The New Jersey Department of Environmental Protection's Division of Fish, Game and Wildlife stocks the feeder canal every spring at sites from Bull's Island through Hopewell Township. In 1975, over eleven thousand trout (about 8,000 rainbow and 3,000 brown trout) of catchable size were put into the feeder canal.

These fish are put in with the expectation that they will all be fished out again in the same season. There is no hope of establishing the canal as a trout stream because it is too warm.

In order to enhance the canal as a site for fishing it will be important to keep the quality of the water good, maintain shading of the stream by overarching trees, keep the channel deep through dredging, and provide adequate access for the fishermen. These practices all fit well with the Commission's recreational and water use goals for the Canal Park.

### *Birds along the Canal Park*

Adjacent to the Canal Park in Princeton Township there is a 39 acre wildlife refuge in which detailed records have been kept of bird sightings. The refuge is principally a marsh but it includes a diversity of habitat (bogs, woods, and brush are also included). A compilation of the bird sightings has been prepared by Mr. Raymond J. Blicharz and published by the Friends of the Princeton Wildlife Refuge. In addition to this list, Mr. Blicharz has supplied the Commission with a list of birds that he and other birdwatchers have spotted on, around, or over the canal over the last 15 years. We have added the species from this second list to the Princeton Wildlife Refuge list.



Canada Geese commonly rear families along the canal.

The following list is in proper ornithological order according to the American Ornithological Union.

### CHECKLIST OF BIRDS RECORDED IN THE REFUGE AND ALONG THE CANAL

W-Winter; S-Summer; S-Spring; F-Fall  
C-Common; U-Uncommon; O-Occasional; R-Rare

\* Known to have nested in Refuge

† Sighted along the canal but not in Refuge

A total of 203 species have been sighted in the Princeton Wildlife Refuge and canal area with 92 species known to have nested in the Wildlife Refuge.

SPECIES	W	S	S	F	SPECIES	W	S	S	F
Common Loon*	O		O		Sora*		O	O	O
Horned Grebe†					Common Gallinule†				
Pied-billed Grebe	O		O		American Coot		O		O
Great Blue Heron	U		U		Killdeer*	O	U	U	U
Green Heron*	U	U	U		American Golden Plover†				
Black-crowned Night Heron	U		U		American Woodcock*		C	U	U
Yellow-crowned Night Heron	R				Common Snipe	O	U		U
American Bittern	O		O		Spotted Sandpiper		C		C
Least Bittern	R		R		Greater Yellowleg†				
Canada Goose*	O	U	U	U	Lesser Yellowleg†				
Snow Gooset					Pectoral Sandpiper†				
Mallard*	U	C	C	C	Least Sandpiper†				
Black Duck*	O	U	U	U	Great Black-backed Gull†				
Gadwall†					Herring Gull	C	C	U	C
Pintail†					Ring-billed Gull*	U	U	U	U
Green-winged Teal†					Rock Dove†				
Blue-winged Teal*		U	U	U	Mourning Dove*	C	C	C	C
American Widgeon†					Yellow-billed Cuckoo*		C	C	C
Wood Duck*	O	C	C	C	Black-billed Cuckoo*		C	C	C
Redhead†					Barn Owl†				
Ring-necked Duck†					Screech Owl*	O	O	O	O
Lesser Scaup†					Great Horned Owl*	O	O	O	O
Common Goldeneyet					Barred Owl*	O	O	O	O
Bufflehead†					Long-eared Owl*	U	R	R	
Hooded Merganser†					Saw-whet Owl	O			
Common Merganser†					Whip-poor-will		R		
Turkey Vulture*	O	C	C	C	Common Nighthawk*		C	C	C
Sharp-shinned Hawk	R	O		O	Chimney Swift*		C	C	C
Cooper's Hawk	R	O		O	Ruby-throated Hummingbird*		U	U	U
Red-tailed Hawk	C	C		C	Belted Kingfisher*	O	U	U	U
Red-shouldered Hawk	O	O		O	Flicker*	C	C	C	C
Broad-winged Hawk*		U	O	C	Pileated Woodpecker†				
Rough-legged Hawk	R		R		Red-bellied Woodpecker*	C	C	C	C
Bald Eagle 1969		R		R	Red-headed Woodpecker*	R	O	O	O
Northern Harrier (Marsh Hawk)	O	O		O	Yellow-bellied Sapsucker	O	C		
Osprey		O		O	Hairy Woodpecker*	C	C	C	C
Peregrine Falcon	R		R		Downy Woodpecker*	C	C	C	C
Merlin	R		R		Eastern Kingbird*	C	C	C	C
Kestrel (Sparrow Hawk)*	U	C	C	C	Great-crested Flycatcher*	C	C	C	C
Ruffed Grouse					Eastern Phoebe*	C	C	C	C
Bobwhite		C			Yellow-bellied Flycatcher*	R	R	R	
Ring-necked Pheasant	C	C	C	C	Acadian Flycatcher*	O	O	O	
King Rail*	O	O	O		Willow Flycatcher*	O	O	U	
Virginia Rail*	O	O	O		Least Flycatcher*	C	C	C	

SPECIES	W	S	S	F	SPECIES	W	S	S	F
Eastern Wood Pewee*	C	C	C		Cape May Warbler	U			U
Olive-sided Flycatcher	R		R		Black-throated Blue Warbler	C	C		
Horned Lark†					Myrtle Warbler	O	C	C	
Tree Swallow*	C	C	C		Black-throated Green Warbler	C			C
Bank Swallow	U		U		Cerulean Warbler	R			
Rough-winged Swallow	C	C	C		Blackburnian Warbler	C			C
Barn Swallow*	C	C	C		Yellow-throated Warbler	R			
Cliff Swallow	O		O		Chestnut-sided Warbler*	C	U	C	
Purple Martin*	U	U	U		Bay-breasted Warbler	U		U	
Blue Jay*	C	C	C	C	Blackpoll	C		C	
Common Crow*	C	C	C	C	Pine Warbler	R		R	
Fish Crow*	O	U	U	U	Prairie Warbler	U		U	
Black-capped Chickadee*	C	C	U	C	Palm Warbler	C		C	
Carolina Chickadee*	C	C	C	C	Ovenbird*	C	C	C	
Brown-capped Chickadee	R				Northern Waterthrush	C		C	
Tufted Titmouse*	C	C	C	C	Louisiana Waterthrush	R		R	
White-breasted Nuthatch*	C	C	C	C	Kentucky Warbler	C	C	C	
Red-breasted Nuthatch	O	U		U	Connecticut Warbler				U
Brown Creeper*	U	C	O	C	Mourning Warbler				
House Wren*	C	C	C	C	Yellowthroat				
Winter Wren	U	U		U	Yellow-breasted Chat	R	R	R	
Carolina Wren*	O	O	O	O	Hooded Warbler	U		U	
Long-billed Marsh Wren*	O	O	O	O	Wilson's Warbler	C		C	
Mockingbird*	C	C	C	C	Canada Warbler	C		C	
Catbird*	O	C	C	C	American Redstart	C	C	C	
Brown Thrasher*	O	C	C	C	House Sparrow*	C	C	C	
Robin*	U	C	C	C	Bobolink	R			
Wood Thrush*	C	C	C	C	Eastern Meadowlark*	O	O	O	U
Hermit Thrush	O	C		C	Red-winged Blackbird*	U	C	C	C
Swainson's Thrush	C		C		Orchard Oriole	O		O	
Gray-cheeked Thrush	U		U		Northern Oriole*	C	C	C	
Veery*	C	C	C	C	Rusty Blackbird	O	U		U
Eastern Bluebird*	O	O	O		Common Grackle*	U	C	C	C
Blue-gray Gnatcatcher*	U	O	U		Cowbird*	U	C	C	C
Golden-crowned Kinglet	C	C		C	Scarlet Tanager*	C	C	C	C
Ruby-crowned Kinglet	U	C		C	Cardinal*	C	C	C	C
Cedar Waxwing*	O	U	C	U	Rose-breasted Grosbeak*	C	C	C	C
Northern Shrike†					Indigo Bunting*	C	C	C	C
Starling	C	C	C	C	Evening Grosbeak	O	O	O	
White-eyed Vireo*	U	U	U	U	Purple Finch	U	C		C
Yellow-throated Vireo*	C	C	C		House Finch	U	U		U
Solitary Vireo	U		U		Pine Siskin	O	O	O	
Red-eyed Vireo	C		C		American Goldfinch*	C	C	C	C
Philadelphia Vireo			R		Red Crossbill	R			
Warbling Vireo*	U	U	U		Rufous-sided Towhee*	O	C	C	C
Brewster's Warbler (hybrid)	R		R		Savannah Sparrow	O		O	
Black and White Warbler*	C	C	C		Slate-colored Junco	C	C		C
Prothonotary Warbler*	U	U			Tree Sparrow	C	C		C
Worm-eating Warbler	U		U		Chipping Sparrow*	C	C	C	C
Golden-winged Warbler	C		U		Field Sparrow*	U	C	C	C
Blue-winged Warbler*	C	C	C		White-crowned Sparrow	O	U		U
Lawrence's Warbler (hybrid)	R		R		White-throated Sparrow	C	C	C	
Tennessee Warbler	C		C		Fox Sparrow	U	C	C	
Orange-crowned Warbler†					Lincoln's Sparrow	O		O	
Nashville Warbler	C		C		Swamp Sparrow*	U	C	C	C
Parula Warbler*	C	O	C		Song Sparrow*	C	C	C	C
Yellow Warbler*	C	C	C		Snow Bunting	R			
Magnolia Warbler	C		C						

## CHAPTER 9: ACCESS

The access areas for the Canal Park that are listed here are those at which it is possible to park a car and have recreational access to both the canal and the towpath. The identifying numbers indicate the distance from the Bull's Island control structure.

0.0      *Bull's Island*

There are several places to park at Bull's Island for those who are using the canal and path. There is room for about 30 cars altogether.

1.32      *Lockatong Creek*

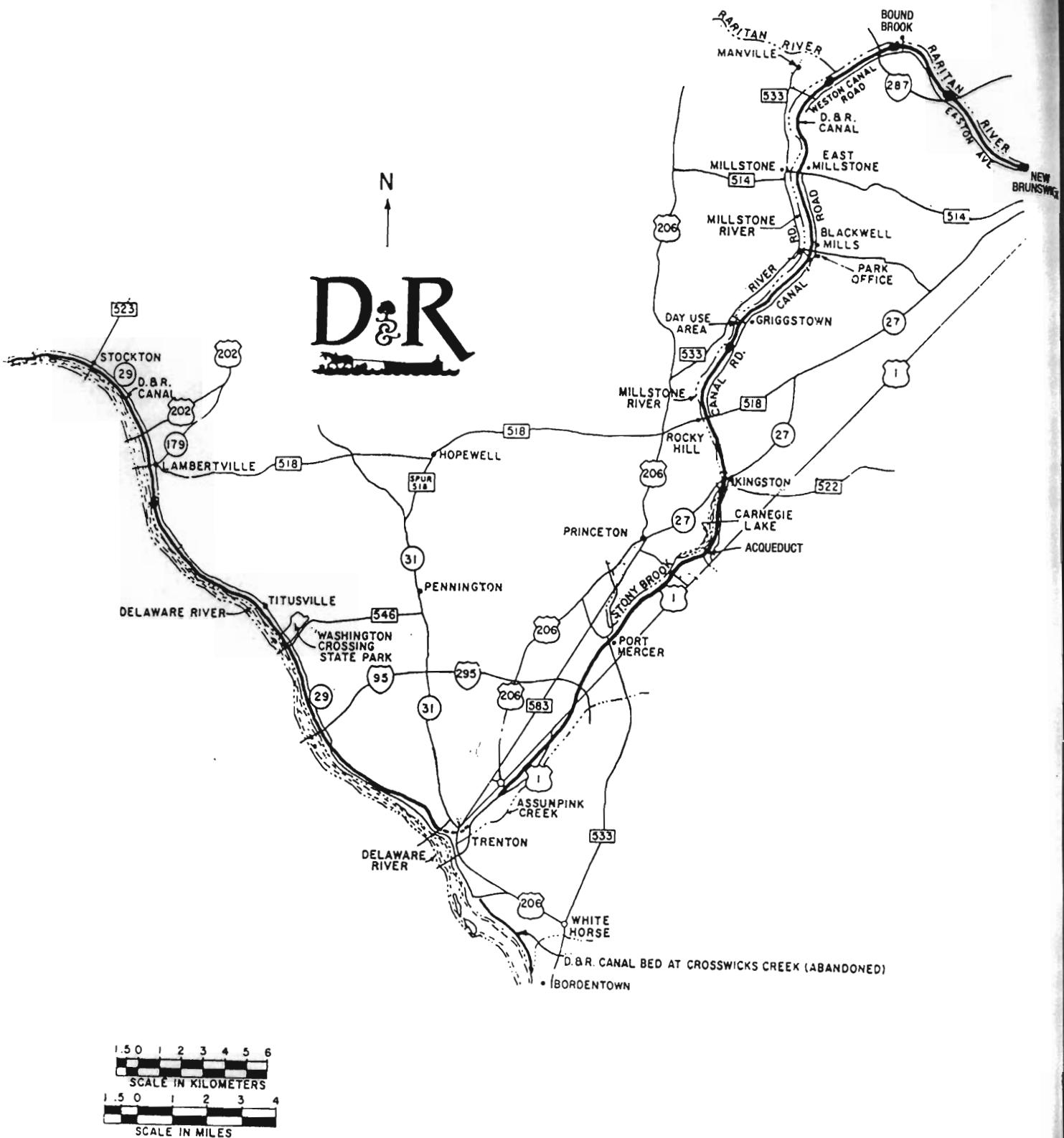
The New Jersey Department of Transportation maintains a small rest stop on the east side of Route 29. Five or six cars can use it at the same time.

3.0      *Prallsville Mills*

For big functions, the Prallsville Mill site is made to accommodate a hundred or more cars. Under normal circumstances, three dozen cars can easily park here.



Bull's Island, Delaware Township. The bridge in the background connects the D & R Canal Park with Pennsylvania's Delaware Canal Park. The people with innertubes found that the Delaware River provides access to the Canal Park.



- 3.3 *Bridge Street, Stockton*  
Parking is available on public streets in the vicinity of Bridge Street, and access to the path and canal is good.
- 5.7 *Holcombe-Jimison Farmstead*  
The driveway from Route 29 to the Holcombe-Jimison Farmstead goes back to the canal and to a farmer's bridge to the path. There is a large field here that can accommodate many cars.
- 6.0/7.0 *City of Lambertville*  
There are a number of city streets that give access to the canal and its path in Lambertville.
- 8.4 *Belle Mountain*  
A farmer's bridge crosses the canal near the site of two large flea markets. Between the canal and the river is a large parking area that affords access to the river as well as to the canal and path.
- 9.8 *Moore's Station*  
Opposite the Trap Rock Quarry at Moore's Station is a parking area for a dozen cars and access to the canal. At this time, however, a railroad bridge must be repaired before there is access to the recreational trail on the opposite bank.
- 11.8/13.0 *Titusville*  
Three bridges cross the canal in Titusville, each of which also has room for a half dozen, or so, cars.
- 13.6 *Washington Crossing State Park*  
A big parking lot lies between the canal and the Delaware River. It is accessible either from a road that crosses the canal or from a road that leads out of Titusville. The pedestrian bridge across Route 29 further enhances this as an access site.
- 16.0 *Scudder's Falls*  
At present, automobiles must park along a road and then cross the canal to reach the path. Plans are made, however, to create parking for about 36 cars between the canal and the Delaware River.
- 16.7 *Upper Ferry Road*
- 17.7 *Wilburtha Road*
- 18.0 *Lower Ferry Road*  
At each of these roads that cross the canal, there is limited parking available and good access to the canal and path. Lower Ferry Road is the best of the three, with parking for about a dozen cars.
- 19.7 *Cadwalader Park*  
The fence, which accompanies the canal throughout the City of Trenton, prevents access to the canal, but a recently erected pedestrian bridge greatly enhances access to the path.
- 20.3 *In Trenton*  
The following roads cross the canal: 1) Hermitage Avenue; 2) Prospect Street; 3) pedestrian bridge

between Prospect and Calhoun Streets; 4) Calhoun Street; 5) West Hanover Street; 6) Passaic Street—before it crosses, Passaic runs right next to the canal for 700 feet; 7) Spring and Willow intersection; 8) Warren Street; 9) North Broad Street; 10) Montgomery Street. The canal then runs along Holland Street before it ignominiously disappears into the culvert. After the culvert there is only one crossing in Trenton and that is a spur of Route 1 leading onto Strawberry Street.

- 23.2 *Mulberry Street*  
There is no towpath in this section, but the abandoned railroad right-of-way can be used as a path. Neither is there much boating because the culvert is upstream and a little way downstream, steel beams block passage. This is, however, an access point since the road crosses the canal and parking is permitted on the side of the road.
- 24.0 *Cherry Tree Lane*  
This road dead-ends at the canal. There is a fair amount of open space around this point and access is good for both hikers or boaters.
- 24.2 *Whitehead Road*  
This is a very congested area with Whitehead Road, Route One, and a Route One spur all crossing the canal in a short distance. Access is quite difficult.
- 25.8 *Carnegie Road*
- 26.5 *Lawrence Station Road*  
Access at both of these crossings is good. There is a parking lot for 15-20 cars at Carnegie Road and limited parking at Lawrence Station.
- 26.9 *U.S. Route One*  
A parking area next to the canal with access to the towpath is located on the west side of the canal, just north of the Route One bridge. Access to this lot, however, is only safely made by cars that are on the ramp from I-295 (from east-bound lanes) to the southern lanes of Route One.
- 28.9 *Port Mercer*  
This area is expected to change shortly in conjunction with a housing development. At present, there is good access off of the dirt road that runs in front of the Canal House.
- 31.4 *Alexander Road*  
Princeton Township has developed "Turning Basin Park" here and it provides excellent access to the Canal Park.
- 32.0 *Washington Road*  
To the east of the canal, on both sides of Washington Road, there are small parking areas for about 6 cars each.
- 32.6 *Harrison Street*  
Access here is not good. There is room for a couple of cars to pull off the road.
- 33.0 *Millstone Aqueduct*  
A parking lot reached from Mapleton Road provides 20-25 spaces and access to the Millstone River, the canal, and—via a newly installed foot bridge—the towpath.



Blackwell's Mills, Franklin Township. Many small scale parking lots are located along the Canal Park's entire length. The Commission's goal is to disperse use of the park so that no one location becomes overused.

35.2      *Kingston*

Route 27 crosses the canal just downstream of the Kingston lock. Excellent parking for 20-25 cars exists and good access is available to the Millstone River, the canal, and the towpath.

37.1      *Rocky Hill*

Between the canal and the Millstone River a small parking lot is available from Route 518. Access is good from this lot to the Millstone, the canal, and the towpath.

38.1/39.5    *Canal Road at Griggstown*

Although Canal Road runs along the canal all the way to Griggstown, there are only two places where access to the Canal Park is possible. There is a very small lot about a mile from Route 518 that can accommodate about 4 cars. There is a footbridge here to provide access to the towpath. Then about a mile from this spot is the Griggstown lock which has parking for 6-8 cars and access to both water and towpath.

39.5      *Griggstown Causeway*

43.7      *Blackwell's Mills Causeway*

At both of these areas there is parking for about 30 cars, there is good access to the Millstone River, the canal, and the towpath; and there is a large field with picnic areas.

- 45.8 *East Millstone*  
Franklin Township maintains a small park here and it, along with a small lot next to the canal, provides good access to the canal and towpath.
- 47.9 *Weston Causeway*  
A parking area was created here when a new alignment for Weston Canal Road was built. The old road, which runs next to the canal, now is a parking area for 20-25 cars.
- 48.5 *Zarephath*  
The bridge leading into Alma White College gives access to the towpath. There is parking space for a few cars here.
- 51.7 *South Bound Brook Lock (Lock 11)*  
A small parking area here and a walkway across the lock provide access at this location. The parking lot can hold 10-15 cars and more could, if necessary, be parked in the street.
- 53.2 *Five Mile Lock*  
Four or five cars can park near the lock, gaining access for the occupants to the canal, towpath, and Raritan River.
- 54.2 *Van Wyckle House*  
A newly erected pedestrian bridge and a soon-to-be-improved parking area provide access to the canal, towpath, and Raritan River. The parking area will hold 8-10 cars.
- 56.3 *Freda Marden Common*  
At present Freda Marden Common provides parking off of Easton Avenue and access to the canal but no access to the towpath. Plans are being prepared for improvements to this site that will include lavatories, a picnic area, improved parking, and a pedestrian bridge to the towpath.

## CHAPTER 10: HISTORIC SITES

In 1972 the Delaware and Raritan Canal and thirteen of its associated buildings were placed on the New Jersey Register of Historic Places. A year later the same nomination was approved for the National Register. The nomination actually included far more than the thirteen described buildings, since the description of the canal's historic district includes everything within one hundred yards on either side of the canal's centerline.

When the Canal Commission investigated the historical character of the canal, it was advised that it was the result of two things: first, this historic structure of the canal itself, including the spillways, culverts, canal houses, turning basins, and other structures; second, the setting within which the canal is located. For both of these categories much has been learned, but the definitive study remains to be done.

The 1982 HISTORIC STRUCTURES REPORT surveys the canal's historic structures and eight historic communities alongside the canal. This report includes maps and text which locate and describe 183 canal structures. (Dominant in this category are bridges over the canal, with 73 included in the 1982 count. There were 32 culverts, 21 spillways, 18 bridgetender and locktender houses, 10 floodgates, 9 locks, 7 turning basins, 5 aqueducts, and 3 bridgetender stations.)

The 1982 report does not, however, give information about how these structures were built or how they operated. Some of this information can be learned from William J. McKelvey, Jr.'s two photographic books on the D & R, and some can be obtained from a study of the archeological reports that accompanied the canal's mid-1980's dredging. These reports, prepared by Historic Interpretation and Conservation, Inc., of Newton, N.J., have not been published but are available at the Commission's office and at other State offices.

The D & R's setting has also been extensively studied but nowhere is all of the information brought together. The 1982 HISTORIC STRUCTURES REPORT gives detailed descriptions of eight communities and locates many other sites on maps. Several districts along the canal have been accepted for inclusion on the New Jersey and National Registers, and each of these has been recorded on documents available in the Office of New Jersey Heritage.

The purpose of the following information is to present an overview of the historic structures that are part of the canal and the structures and districts that comprise the canal's setting.

### I. HUNTERDON COUNTY

#### Bull's Island

Bull's Island is where the canal begins. Water enters the canal here and flows sixty miles to the Raritan River. Remnants of the control lock remain beneath the bridge on the island from Route 29. The wing dam in the Delaware River here was built to raise the river's level to assure a sufficient flow of river water into the canal. At the southern tip of the island is a spillway to divert excess water back into the Delaware.

#### Raven Rock

The twelve houses which remain in the community of Raven Rock are a significant grouping of early 19th century stone and wood frame structures which have survived into the 20th century relatively unaltered. The oldest building, the Saxtonville Tavern, was built in 1782. An 1873 map shows the community with a couple of stores, a post office, railroad station, and an office of the canal company. Raven Rock is not on the National Register nor is it a registered State Historic Site, but it has been considered eligible for inclusion.

#### Prallsville Mills

The Prallsville lock has been badly destroyed since the canal was closed in 1933 but the two culverts

of the by-pass remain, as does much of the downstream end of the western lock wall. The spillway opposite the Wickecheoke is a modern concrete structure, built in the 1950's to replace the wooden crib that had served as a spillway.

The Prallsville Mills Historic District includes a stone grist mill and its annexed grain silo, a linseed oil mill, a saw mill, and several associated buildings—including houses that were built for various owners and millers. This was a major 19th century industrial site.

### Borough of Stockton

Most of the buildings in the Borough of Stockton date from the 19th century. It has the potential for inclusion on the National Register of Historic Places as a district which exemplifies Victorian and vernacular architectural styles of its period.

### Brookville

At the southern end of Stockton Borough is the community of Brookville, a collection of about a dozen homes that were built in the late 19th century. This community is not included on the State or National Registers of Historic Places but has been considered eligible for inclusion. Two interesting canal structures are located in Brookville. A waste gate and a railroad bridge over the canal that causes the canal to follow a tight S-curve.

### Lambertville

Within Lambertville are two canal locks, several bridges, two aqueducts with spillways, a very nice stone-arched culvert, a bridgetender and a locktender house, and much evidence of the diversions through which canal water was drawn to power Lambertville's mills and factories. The outlet lock into the Delaware River has partly collapsed and is partly filled, but still evokes the days when a cable across the Delaware connected Pennsylvania's Delaware Canal with the D & R.

The first settlement of the area that is now the City of Lambertville occurred in 1724. The area was no more than a tiny collection of farm houses throughout the 18th century. In the early 19th century, however, Lambertville's site on the Old York Road—the main road between Philadelphia and New York City—gave impetus to further development. In 1812 a bridge was built across the Delaware River and a stone tavern and inn (now greatly enlarged and known as the Lambertville House) was built. The opening of the D & R Canal in 1834 and of the railroad in 1851 started an industrial boom in Lambertville which included two paper mills, a rubber mill, a wheel and spoke factory, a ceramics factory, machine shops, a brewery, and several saw and flour mills. Also of great importance were the railroad shops where locomotives, freight cars and passenger cars were built.

This prosperity is amply reflected today in the architecture of Lambertville, which boasts one of the country's premier collections of Victorian architecture. Nearly the entire city, comprised of about 1800 structures, is on the State and National Registers of Historic Places.

## II. MERCER COUNTY

### Titusville

Strung out between the canal and the Delaware River, the residential community of Titusville has experienced many changes over the last two hundred years. It started as a farm community, then, after the canal and railroad were built it developed into a commercial center, but then in the late 19th and 20th centuries it changed into a site for summer homes for prosperous Trentonians. It is now a suburban, year around, community. All of the structures between the canal and the Delaware River are included in the Nationally Registered Historic District.

## Hopewell Township

### *Washington Crossing State Park . . . River Road*

On Christmas night, 1776, General Washington and his army crossed the Delaware here and prepared to make their surprise attack on Trenton the next day, a battle that would mark the turning point in the Revolutionary War. The McKonkey Ferry House, located adjacent to the park, is the site of General Washington's last council of war before the Battle of Trenton and was operated as a tavern for ferrymen at that time.

A very interesting spillway which diverts excess canal water to the Delaware is just downstream of the bridge here.

#### 15.4    *Jacob's Creek Gristmill and House . . . River Road; c. 1730.*

The mill's foundation dates to the 1700's and the date 1739 is found on the fireplace in the house. Constructed of stone and wood, the house is believed to have been renovated and added to by J.T. Comly in the 1840's. The mill probably supplied flour for the Continental Army and remained active, although on a decreased scale, until the 1930's. Jacob's Creek still runs in front of the mill and house, which are privately owned. They are in excellent condition.

## Ewing Township

#### 17.1    *Bridgetender's House . . . Wilburtha Road; c. 1831.*

This small, two-story, frame house is 14 x 28 feet and probably built at the time of the canal. It was altered and enlarged in the 1940-50's when the center chimney was removed. It is State-owned, and in good condition and lived in by an employee of the Water Supply Authority. The neighborhood around the canal on Wilburtha has been determined to be eligible for inclusion on the National Register as a historic district.

## Trenton

Trenton was once the hub of the canal. It was the site of the high point of the main canal, where the feeder and the main canal joined. Factories lined the canal in the late 19th century, most of them with their own turning basins. Several Trenton locks raised the main canal to its apex and more than a dozen swing bridges crossed the canal. Today, little of that is visible. The main canal has either been filled or piped under the Route One Freeway. The turning basins have been filled. The canal has been narrowed. The wooden swing bridges have been replaced with concrete structures too low to let a canoe pass under. The canal is clad on both sides with a chain link fence—put there as a political solution to the issue of safety.

The route of the Delaware and Raritan Canal through the City of Trenton is rich in historic landmarks. Located just a few blocks from the canal in the State Capitol area are a variety of sites of historical significance. Among them are the Calhoun Street Bridge over the Delaware River. It was built in 1885, and is the second oldest existing bridge across the Delaware. The State House, which was built in 1784, is the second oldest state house in the country to be used continuously in that capacity; and the old Barracks which were built in 1758 to house Colonial troops during the French and Indian War and were subsequently used to quarter British, Hessian, and American troops at one time or another during the Revolutionary War. It is maintained by the State as a museum. The newly designated "State House Historic District" is also in the immediate area and includes several Victorian townhouses, a stone house dating to 1763, and the Masonic Temple which was built in 1793.

#### 19.7    *McCall House . . . Cadwalader Park; c. 1845.*

Originally the home of Henry McCall, a wealthy Philadelphia businessman, the house, built in the

manner of an Italianate villa, was of brick, roughcast with stucco and scored to simulate stone. It has since been cemented over and restored. Although fairly plain, it was considered a fine country house. Much of the mid-19th century landscaping remains, and the house has been renovated to become a museum for the City of Trenton. The house is located within Cadwalader Park, which was designed by Frederick Law Olmstead.

- 20.6 *Bridgetender's House . . .*West State Street & Prospect Street; c. 1860.

This is a small two-story frame house, 16 x 30 feet. There are two front doors opening onto a front porch which has bracketed columns. The exterior has had no alterations. It has been renovated by its owner, the City of Trenton, and is lived in by a family.

- 20.9 *Canal Supervisor's House . . .*25 Calhoun Street; c. 1875.

This two-story frame house is of irregular plan, probably due to additions over the years. The two-story bay window and front porch are probably additions. It was rehabilitated and restored in 1975, by the Bureau of Parks, Department of Environmental Protection, and is presently used as a private home.

- 21.0 *Bridgetender's House . . .*233 West Hanover Street; c. 1850.

This small two-story frame house has a front porch with bracketed columns, and has had no exterior alterations over the years. It sits back from the street, on the canal, surrounded by the dwellings of a present-day inner city. The house is leased to the owners of a nearby office building, to be used as a guard house.

- 21.4 *Trenton Battle Monument . . .*Warren and Broad Streets; c. 1891.

This 150 foot tall monument of Hallowell granite marks the spot where General Washington placed his artillery in the surprise attack on Trenton, December, 1776. It commemorates the events of that battle and the renewed hope that victory gave to the fatigued and dispirited Continental Army.

## ABBOTT FARM DISTRICT

The 1,500 acre Abbott Farm District is located south of Trenton and north of Bordentown with the Delaware and Raritan Canal forming most of its western boundary. In 1872 Charles Conrad Abbott, M.D., discovered man-made implements in the glacial gravels on his farm. Over 100 artifacts dating from the Paleo Indian (c. 10,000 B.C.) to the Late Woodland (c. 1400 A.D.) periods have been unearthed on the site, and it is the largest known Middle Woodland Village site (c. 500 B.C. to 500 A.D.) in the coastal Mid-Atlantic/New England Region. The Abbott Farm District is listed on both the New Jersey State and National Registers of Historic Places, and is both publicly and privately owned.

Four historically significant structures stand in the district today. The earliest of these is the Isaac Watson House, c. 1708. Of fieldstone construction, this two-and-one-half-story house is a prime example of the Primitive Colonial style. Presently, it is county-owned and unoccupied. Built by one of the earliest and most prominent families of New Jersey, the second structure, the Isaac Pearson Mansion, is a two-and-one-half-story colonial brick house. It is privately owned, occupied, and in fair condition. The Bow Hill, or Barnt De Klyn House, was built in 1787 in the Federal style. The house, which is two and one half stories and of brick construction, was originally owned by a proud and wealthy man of much local importance. However, presently it is owned by the Ukrainian National Home, and serves as the Ukr-Amer Cultural Center. The fourth historic structure is the Abbott De Cou Mansion, c. 1797. It is a two-story Georgian detached house constructed of Flemish bond brick. Today, it is privately owned, occupied, and in good condition.

### III. BURLINGTON COUNTY

#### Bordentown

There were once several buildings clustered around the Bordentown outlet lock. Today the buildings are all gone and the lock is badly deteriorated. It is, however, the last wood-clad lock on the D & R.

Bordentown, at the outlet lock on the Delaware, was originally settled in the late 17th century. It was burned by the British and little remains of its pre-revolutionary origins. It was rebuilt during the late 18th and early 19th century and was a thriving river port and rail center in the mid-19th century. Joseph Bonaparte, Napoleon's brother and formerly King of Spain, settled here on a hill overlooking the canal and built an elegant mansion. This was demolished by a subsequent owner who wished to dramatize his hatred for tyranny, but the Gate House remains as a memento of the elegance which Bonaparte brought to this New Jersey town. The town itself contains many excellent examples of Victorian architecture built during its prime.

### IV. MERCER COUNTY

#### Lawrence Township

- 25.7 *Bridgetender's House . . .* Carnegie Road; c. 1850.

This small, two-and-one-half-story house is of frame construction with two chimneys, one in the center and one in the wing. It measures 18 x 26 feet and has projecting eaves with exposed rafters. The house is in poor condition, occupied, and is owned by the State.

- 28.6 *Bridgetender's House . . .* Port Mercer; c. 1831.

Probably built at the time of the canal, this two-and-one-half-story frame house measures 17 x 30



Port Mercer, Lawrence and West Windsor. The bridgetender's house and several other historic structures still mark Port Mercer as a small canal community.

feet with a lean-to addition. A front porch with square wooden columns and scroll brackets was added during the 1850's. The house is State-owned, in good condition, and is used as a community center by the Lawrence Township Historical Society, who restored it.

31.2 *Princeton Basin . . . Alexander Street.*

At one time the Princeton Basin area was bustling with commercial and industrial activity related to the canal. There were two large turning basins (one still exists just north of Alexander Street, but the other has been filled), a sash factory, a chapel, a hotel used by canal men as a stopping point for their two-day canal trip, the headquarters of the canal administrator, and several houses and other businesses. Some of the houses remain and are part of a renovation project being undertaken by the Princeton Historical Society. The business establishments and the chapel have all disappeared except the hotel, which has been converted to a private house and stands in a terrible state of disrepair.

31.4 *"Swing" Railroad Bridge . . . Between Alexander and Washington Streets.*

This is one of the five remaining swing bridges over the canal, the kind most frequently used to bridge the waterway. It was designed to clear the canal by swinging to the side rather than the more familiar lifting up of a drawbridge. Although the bridge is now fixed in place, the mechanism is still intact.

### Princeton

The canal passes about one mile to the southwest of the center of Princeton. Princeton is of considerable historic significance. General Washington engaged the British at the Battle of Princeton in January, 1777, and the battlefield has been reserved as a State Park. Nassau Hall on the Princeton University campus was the site of the British surrender after the Battle of Princeton. It was also the home of the first legislature of New Jersey and served briefly, from June to November, 1783, as the meeting place of the Continental Congress. The entire Princeton Historic District contains excellent examples of 18th, 19th, and 20th century architecture which range from the early 18th century Clarke-Brearly House, once used as a blacksmith's residence, to the 1836 home of Woodrow Wilson, and the house on Mercer Street where Albert Einstein lived from 1932 until his death in 1955.

### Kingston

A small historic district has been accepted for inclusion on the State and National Registers of Historic Places which includes several of the buildings in the community of Kingston. Most prominent among them is the grist mill, which dates from 1888.

Two canal buildings associated with the Kingston lock are located here. The locktender's house was built at the time of the canal on the lock bank with a walk-in cellar. This two-story masonry house measures 18 x 30 feet, has a wing and two gable-end chimneys. It is presently occupied by a man who works for the New Jersey Water Supply Authority and rents canoes.

The Toll House is a wood frame structure, built in the bank of the canal next to the lock house and was used as a telegraph office and toll station.

A turning basin also remains from the days when canal boats pulled into Kingston to spend a night, change mules, load or unload freight.

## V. SOMERSET COUNTY

### Rocky Hill

The town of Rocky Hill, nearly all of which is now on the State and National Registers of Historic Places, began as a mill site on the Millstone River in the early 18th century. The mid-19th century construction of



Rocky Hill. The Rocky Hill railroad station (right), Barney McClosky's tavern (on the far side of canal) and the bridgetender's house (out of sight to the left) are all gone. The loss of these historic structures, whether they were part of the canal operation or just associated with it, leaves the Canal Park bereft.

the railroad and canal gave the community a spurt of growth. Today it is a well-preserved collection of 19th century architecture with very few 20th century intrusions.

*Rockingham . . . Route 518, 1 mile east of Rocky Hill; c. 1730.*

George Washington, his wife, staff, and some the Continental Army troops stayed here during the fall of 1783 while Congress was in session in Princeton. He composed his farewell "Address to the Armies" here and delivered it to his troops from the second floor balcony. It is a two-story frame house that is owned by the State and used as a museum. The house has been moved since Washington's day to escape damaging blasts from the nearby stone quarry.

#### **Griggstown**

The Griggstown Historic District stretches for five miles along the eastern side of the D & R Canal Park. The Griggstown lock, with an interesting remnant of the bypass channel still visible, is in the southern part of the district. At the northern end is the 10 Mile Run culvert, one of the most impressive of the structures designed to take streams under the canal. The district is a fine collection of 18th and 19th century farmsteads and canal buildings (locktender's and bridgetender's homes, muletender's barracks, and toll house) with very few 20th century intrusions. The focus for the community is the Griggstown Causeway, which crosses the canal and the Millstone River. Benjamin Griggs' mill was here, as were a store, an inn, and other commercial structures.

### Blackwell's Mills

Like Griggstown, Blackwell's Mills is a long strip of 18th and 19th century farmhouses and agricultural buildings facing the canal, with a community focus on a causeway that crosses the canal and river. It, too, boasts an impressive stone culvert, the 6 Mile Run culvert just south of the causeway. Unlike Griggstown, Blackwell's Mills is not on the State or Federal Register of Historic Places. Most of the farms in this district were in place and prosperous by the time of the Revolutionary War. The building of the canal had little effect.

### Millstone River Historic District

This area, although on the other side of the Millstone River from the canal, is easily accessible by using the causeways at Griggstown, Blackwell's Mills, and Millstone. It extends from Montgomery Township north through the Borough of Millstone and was, during the Revolutionary War, an important thoroughfare for troop movement. The district contains houses built as early as 1735, as well as examples of early 19th century architecture. The Van Doren House on River Road was the resting place for General Washington after his victory in Princeton, January 3, 1777. The Millstone Forge, c. 1700, on North River Road was until the death in 1959 of its last smith, Edward Wyckoff, possibly the oldest, continuously operated blacksmith shop in the country, spanning a period of nearly 260 years. The building has been restored by the Old Millstone Forge Association.

### East Millstone

Until the canal was opened in 1834 there was no community of East Millstone; there were only some farms dependent upon the town of Millstone—across the Millstone River from East Millstone—for a commercial



Blackwell's Mills, Franklin Township. The bridgetender's house has been restored by a community organization and is periodically open for public events.

center. The canal and the 1855 opening of the rail connection with New Brunswick gave impetus to the growth of the town, which, like the Borough of Millstone, is included on the National Register of Historic Places.

- 45.79     *Bridgetender's House . . . Amwell Road; c. 1831.*

Like all of the other remaining bridgetenders' houses from Kingston to New Brunswick, this is an 18 x 30 foot masonry house with two stories and a wood siding addition. Repairs have been made in recent years but it still needs more work before it can be inhabited.

- 47.9     *Bridgetender's House . . . Weston Causeway; c. 1831.*

Built at the time of the canal, this two-story fieldstone house is stuccoed and measures 18 x 30 feet. It has two gable-end chimneys, a brick oven cantilevered through the exterior wall, and a porch which was added in the 1850's. This house is State-owned, unoccupied, and badly deteriorated.

- 48.4     *Bridgetender's House . . . Zarephath; c. 1831.*

This is a two-story masonry, stuccoed house, 18 x 30 feet, with two gable-end chimneys and a brick oven cantilevered through the exterior wall. The house, built at the time of the canal, is unoccupied and in need of major renovation.

- 49.2     *Lock and Locktender's House . . . Ten Mile Lock, 1 mile north of Zarephath; c. 1831.*

The lock, like the others along the canal, has been stripped of gates and hardware, sprayed with concrete veneer, and converted into a water control gate. The locktender's house is a two-and-one-



Blackwell's Mills, Franklin Township. Many eighteenth and nineteenth century farmhouses line Canal Road in the Millstone River valley. The house above is used as the headquarters for the Canal Park Superintendent and staff.

half-story frame house which measures 16 x 48 feet. It has a lean-to latter addition on the south end, two chimneys, and a porch which was added in the mid-19th century. Built when the canal was constructed, it is now occupied and is in good condition. State-owned.

### South Bound Brook

- 51.46 *South Bound Brook Lock . . . c. 1830.*

This is the best preserved lock in the Canal Park. The massive masonry walls have been left exposed and some of the wood facing that protected the boats from hitting against the stone walls can be seen. The locktender's house was destroyed in 1975.

- 51.5 *Swing Bridge . . . Bridge Street; c. 1831.*

The mechanism of this swing-type canal bridge is still intact although it has been permanently fixed in place.

- 51.7 *Swing Bridge . . . Railroad bridge over the canal in South Bound Brook; c. 1831.*

Another of the swing bridges with mechanism intact, though fixed in place.

- 52.1 *Staats House . . . Von Steuben Lane; c. 1740.*

During the winter of 1778-79, Baron Von Steuben, a German officer who acted as a consultant to the Revolutionary Army, used the original center portion of this house as his headquarters. Here he wrote the "Regulations for the Order and Discipline of the Troops of the United States" after conferring with General Washington. Today, the house is a privately owned and restored residence in excellent condition.

- 53.18 *Five Mile Lock . . . c. 1831.*

When the canal operated there were two more locks downstream, the "deep lock" and the double outlet lock. The deep lock has been destroyed for the construction of Route 18 and the outlet lock is not in the park. Five Mile lock, therefore, is the last D & R lock in the Canal Park.

### Franklin Township

- 54.2 *Fisher House . . . Canal Road; c. 1668.*

The patriot, Hendrick Fisher, former President of the Colonial Assembly and member of the Committee of Governors, lived here until his death in 1778. Today this one-and-one-half-story house is owned by the Ukrainian Orthodox Church and is well maintained.

- 55.0 *Van Wykle House . . . Easton Avenue; c. 1722.*

This is a one-and-one-half-story, Dutch style house of frame construction with brick-filled walls. There is an 18th century family cemetery on the grounds. It is owned by Franklin Township and used as a community center. It is in good condition.

## VII. MIDDLESEX COUNTY

### New Brunswick

- 56.7 *Landing Lane Bridge . . . Bridge over canal at Landing Lane.*

This is another of the five remaining swing bridge mechanisms along the canal.

### New Brunswick

New Brunswick, at the outlet lock of the Delaware and Raritan Canal on the Raritan River, was first settled in the 17th century at a ferry crossing of the Raritan. Washington passed through the city many times during the Revolutionary period and celebrated the second anniversary of the signing of the Declaration of Independence here on 4 July 1778, after defeating the British at the Battle of Monmouth. The Indian Queen Tavern, c. 1729, recently moved to Buccleuch Park, is rich in historic significance. John Adams, Benjamin Franklin, and John Rutledge all stopped here on their way to Philadelphia to attend sessions of the Continental Congress. The city also abounds in fine examples of Victorian architecture including New Jersey Hall, c. 1889, on the Rutgers University campus, and the Smith House, c. 1870, with its ornate tower and balcony.

## CHAPTER 11: POPULATION

There are two issues relating to population that are relevant to the planning for the Canal Park. The first is to see if there are population patterns that will have an impact on the character of the park. The second is to see if there are conclusions about use of the park that can be drawn from demographics.

The New Jersey Department of Labor offers the following 1985 population figures for the municipalities that adjoin the Canal Park:

### HUNTERDON COUNTY

Delaware Township .....	3,895
Kingwood Township .....	2,939
Lambertville City .....	3,967
Stockton Borough .....	630
West Amwell Township .....	2,292
Hunterdon Total .....	13,723

### MERCER COUNTY

Ewing Township .....	35,296
Hamilton Township .....	85,684



Canal Pointe, West Windsor. New development along the U.S. Route One corridor has been phenomenal in the last decade. These new people's need for open space and recreational facilities has led to greatly increased use of the Canal Park.

Hopewell Township .....	11,031
Lawrence Township .....	22,773
Princeton Township .....	14,187
Trenton .....	91,654
West Windsor Township .....	9,682
Mercer Total .....	270,307

#### SOMERSET COUNTY

Bound Brook Borough .....	9,350
Franklin Township .....	34,019
Hillsborough Township .....	22,705
Manville Borough .....	10,976
Millstone Borough .....	521
Montgomery Township .....	7,971
Rocky Hill Borough .....	705
South Bound Brook Borough .....	4,228
Somerset Total .....	90,475

#### MIDDLESEX COUNTY

Highland Park Borough .....	13,198
New Brunswick .....	41,495
Piscataway Township .....	43,273
Plainsboro Township .....	9,040
South Brunswick Township .....	19,977
Middlesex Total .....	126,883

#### BURLINGTON COUNTY

Bordentown City .....	4,314
Bordentown Township .....	7,184
Burlington Total .....	11,498

Hunterdon .....	13,723
Mercer .....	270,307
Somerset .....	90,475
Middlesex .....	126,883
Burlington .....	11,498

Total ..... 512,886\*

\*Total for 27 municipalities adjoining the Canal Park

Approximately a half million people live in the immediate proximity of the D & R Canal Park. Most of this number lives along the main canal from Trenton to New Brunswick. The most rapidly growing part of the region is the Route One Corridor between Trenton and New Brunswick, so the area which is presently most densely settled will become more so in the near future.

It is extremely difficult to look at these numbers and draw conclusions about use of the Canal Park. While the Hunterdon County areas along the canal are sparsely settled compared to other areas, observation reveals

that both parts of the park receive more or less equal use. Casual interviews with users, moreover, have informed the Canal Park managers that people come from Philadelphia, New York City, and from many quite distant parts of New Jersey to use the park. Several million are within a practical "service area" for the Canal Park.



Titusville, Hopewell Township. In the case of the historic canal communities like Titusville, the closeness of the buildings does not seem intrusive.

## **SECTION IV**

### **Appendices**

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## APPENDIX C: THE DELAWARE AND RARITAN CANAL STATE PARK LAW OF 1974

C 118-1

C.13:13A-1 et seq.

P.L. 1974, CHAPTER 118, *approved October 10, 1974*

1974 Senate No. 963 (*Official Copy Reprint*)

AN ACT establishing the Delaware and Raritan Canal State Park, and creating a Delaware and Raritan Canal Commission, prescribing its jurisdiction, powers and duties, and making an appropriation therefor.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

1. This act shall be known and may be cited as the "Delaware and Raritan Canal State Park Law of 1974."

2. The Legislature finds and declares that:

a. The Delaware and Raritan Canal is a vital source of water supply and is of historic, ecological, and recreational value to the citizens of New Jersey; that the canal and the narrow band of land along the canal banks owned by the State are also an extremely attractive and lucrative asset to the State; that the quantity and quality of surface water runoff, flooding potential, esthetic surroundings, and even the structural integrity of the canal, can all be adversely affected by surrounding developments; that within the State Government, decisions which affect the canal and the State owned land appertaining thereto are often made separately by different State agencies and local governing bodies; that the surrounding properties are private and public portions of 17 municipalities in four counties, each with its own planning and zoning authority; that, in general, the decisions which are made often reflect local expediencies rather than a coherent plan.

b. The State of New Jersey must act immediately and thereafter to preserve, locate, survey, and acquire such lands as are now available for public recreation and the conservation of natural resources, in order to promote the public health, prosperity, and general welfare, as a proper responsibility of government; that the enactment of the provisions set forth in this act would create a Delaware and Raritan Canal State Park to be maintained and operated under the jurisdiction of the Department of Environmental Protection, which shall have the power, with the approval of the Delaware and Raritan Canal Commission, as hereafter provided, to take such measures as may be necessary to preserve, maintain, improve, and enlarge the park, if funds for these purposes are made available from time to time; that a Delaware and Raritan Canal Commission be established to prepare, adopt, and implement a master plan for the physical development of the park, and to review State and local actions that impact on the park to insure that these actions conform as nearly as possible to the commission's master plan; that funds will be appropriated in this act to the Department of Environmental Protection for the purposes of locating, surveying, and selecting necessary land sites appertaining to the canal, immediately and thereafter, which information shall be reported to the Legislature for its consideration, and for the use of the Delaware and Raritan Canal Commission in the performance of its powers and duties pursuant to this act, and that funds will be appropriated for the use of the commission in the performance of its powers and duties pursuant to this act.

3. As used in this act:

a. "Department" means the Department of Environmental Protection.  
b. "Park" means the Delaware and Raritan Canal Park as determined by the Department of Environmental Protection, pursuant to section 6 a. of this act.

c. "Canal" means the Delaware and Raritan Canal, its feeder canal, and the abandoned section of the canal in the township of Hamilton, county of Mercer, to be determined, pursuant to subsection 6 f. of this act.

d. "Commission" means the Delaware and Raritan Canal Commission.

e. "Commissioner" means the Commissioner of the Department of Environmental Protection.

f. "Review zone" means that region appertaining to and including the park, as determined pursuant to subsections 6 e. and 14 a. of this act, in which proposed "projects," as defined in subsection 14 c., may cause an adverse impact on the park including, but not limited to, drainage, esthetic, and ecological factors.

4. The Delaware and Raritan Canal and the lands along the canal banks, now or hereafter owned by the State, are designated as the Delaware and Raritan Canal State Park, to be maintained and operated under the Department of Environmental Protection as a State park.

5. a. The department shall, as funds for these purposes are made available from time to time, take such measures as may be necessary to preserve, maintain, develop and improve the park in such manner and to such extent as, in its judgment, will best make it of use to the public. In the development of the park, the department shall have the power to install permanent improvements for the health and comfort of the public; provided, however, that the department shall take no such measures, nor install such improvements, unless the plans therefor shall have been submitted to and approved by the Delaware and Raritan Canal Commission, created pursuant to section 11 of this act.

b. Notwithstanding the provisions of any other law to the contrary, no building or structure, streets, bridges, parking areas, public transit lines, utilities, sewerage, and service-water supply facilities may be altered within the park unless the plans or specifications for the proposed alteration meet park standards to be adopted and promulgated by the department.

6. a. The department shall, within 1 month after this act takes effect, proceed to locate, survey and select critical land sites, and within 1 year after this act takes effect, and from time to time thereafter, such other land sites appertaining to the park which may be advisable, proper or necessary for the purpose of establishing the park and to expand and preserve the uses, benefits, and enjoyments thereof to the people, and report its findings, including its recommended priorities, and a schedule of required funding for the acquisition of such lands, pursuant to the provisions of subsection 6 d. of this act, to the Legislature.

b. In locating, surveying, and selecting, the land sites mentioned in subsection 6 a. of this act, the department shall: (1) assemble a detailed data base, including updated mapping and zoning information, to determine the ownership and use of lands appertaining to park properties; and (2) consult with the Delaware and Raritan Canal Commission, county and municipal governmental officials of jurisdictions in which the State park or any of the land sites thereof are located; concerned environmental groups; water suppliers; historical associations and such State agencies as now or hereafter have jurisdiction over the park, or any part thereof.

c. In determining which land sites described in subsection 6 a. of this act should be recommended to the Legislature for acquisition, the department shall consider: (1) the existence of present historical structures; (2) the immediate danger of an occurrence of adverse impact to the park including, but not limited to, drainage, esthetic, and ecological factors; (3) proximity to high-density population concentrations; and (4) the availability of land at a cost advantageous to the State.

d. The department shall, pursuant to the provisions of subsection 6 a. of this act, determine and recommend to the Legislature a schedule of required funding for the acquisition of those land sites described in subsection 6 a. of this act. The schedule may provide for any combination of: (1) inclusion of necessary revenues in a future State bond issue for the acquisition of open space or other lands; (2) special authorization for purposes of completing the State Park; and (3) local-State matching fund proposals to implement or expand the agreed plan.

e. The department, in locating, surveying, and selecting the land sites described in subsection 6 a. of this act, and in assembling a detailed data base pursuant to subsection 6 b. of this act shall locate, survey, select, and recommend to the commission land sites to be included in the review zone, pursuant to the provisions of subsection 14 a. of this act; provided that such recommendations shall not be binding on the commission.

f. The department shall, within 3 months after this act takes effect, proceed to locate, survey, and select the abandoned section of the canal, in the township of Hamilton, county of Mercer, which, for purposes of this act, shall be considered part of the canal.

g. The department shall in locating, surveying, and selecting the land sites described in subsection 6 a. of this act, exclude those lands situated between the Landing Lane bridge and the juncture of the canal with the Raritan river.

7. In addition to the foregoing powers, the commissioner and his authorized agents and employees may enter upon any lands, waters, and premises for the purpose of making surveys, soundings, drillings, and examinations as he may deem necessary or convenient for the purposes of this act, all in accordance with due process of law, and such entry shall not be deemed a trespass nor shall an entry for such purpose be deemed an entry under any condemnation proceedings which may be then pending. The commissioner shall make reimbursement for any actual damages resulting to such lands, waters, and premises as a result of such activities.

8. The department shall have power to take title, in fee or otherwise, by gift or devise, and, if funds are made available for these purposes from time to time, by purchase or eminent domain to such lands appertaining to the park and to any rights, interests and easements therein, in the name of the State of New Jersey. In the event that it becomes necessary or advisable to acquire any lands or interest therein for the purpose of this act by eminent domain, the procedure for condemnation of such lands shall be taken in accordance with the provisions of the "Eminent Domain Act of 1971," P.L. 1971, c.361 (C. 20:3-1 et seq.).

9. The department, to effectuate the general purpose of this act, shall with the approval of the commission, have power to hire, rent or lease any portion of such lands to private enterprises and such moneys as are derived from such hiring, renting, or leasing shall be deposited with the General State Fund.

10. The department shall, with the approval of the commission, have power to make such rules and regulations for the use and protection of the park as may, in its judgment, be necessary. The department shall, subject to the approval of the Attorney General and in accordance with such regulations for the protection of the public safety and welfare as the Attorney General shall prescribe, further have power to vest in such of its employees as it may be determined to be necessary the powers and duties of peace officers for the abatement of nuisances, stopping of abuses, and protection and management of the park under any rules and regulations the department may prescribe.

11. a. There is hereby established in the Department of Environmental Protection a Delaware and Raritan Canal Commission which shall consist of nine members appointed and qualified as follows:

(1) The Commissioner of the Department of Environmental Protection, serving ex officio; provided, however, that the commissioner may designate an officer or employee of the department to represent him at meetings of the commission, and such designee may lawfully vote and otherwise act on behalf of the commissioner. Any such designation shall be in writing delivered to the chairman of the commission and shall continue in effect during the period the commissioner is in such office, or until revoked or amended by writing delivered to the chairman of the commission.

(2) Eight citizens of the State, appointed by the Governor, with the advice and consent of the Senate, no more than four of whom shall be of the same political party; at least four of whom shall be residents of the counties of Hunterdon, Mercer, Middlesex and Somerset, respectively, and one of whom shall be a mayor of a municipality appertaining to the Delaware and Raritan Canal State Park; provided, however, that no more than one citizen shall be appointed from any one municipality. In making appointments to the commission, the Governor may consider the recommendations of concerned environmental groups; historical associations; water suppliers; real estate interests; and members of relevant professions:

b. The commissioner shall serve on the commission during his term of office and shall be succeeded by his successor in office. Each member appointed by the Governor shall serve for terms of 5 years; provided that of the first members appointed by the Governor, two shall serve for a term of 2 years, two for a term of 3 years, two for a term of 4 years and two for a term of 5 years. Each member shall serve for the term of his appointment and until his successor shall have been appointed and qualified. Any vacancy shall be filled in the same manner as the original appointment for the unexpired term only.

c. Any member of the commission may be removed by the Governor for cause after a public hearing.

d. Each member of the commission, before entering upon his duties, shall take and subscribe to an oath to perform the duties of his office faithfully, impartially, and justly to the best of his ability. A record of such oaths shall be filed in the office of the Secretary of State.

e. The members of the commission shall serve without compensation, but the commission may reimburse its members for necessary expenses incurred in the discharge of their duties.

f. The Governor shall designate one of the members of the commission, other than the Commissioner of the Department of Environmental Protection, as chairman. The commission shall select from its members a vice-chairman and shall employ an executive director, who shall be secretary, and a treasurer. The commission may also appoint, retain and employ, without regard to the provisions of Title 11, Civil Service, of the Revised Statutes, such officers, agents, employees and experts as it may require, and it shall determine their qualifications, terms of office, duties, services and compensation.

g. The powers of the commission shall be vested in the members thereof in office from time to time, and a majority of the total authorized membership of the commission shall constitute a quorum at any meeting thereof. Action may be taken and motions and resolutions adopted by the commission at any meeting thereof by the affirmative vote of a majority of the members, unless in any case the bylaws of the commission or any of the provisions of this act shall require a larger number; provided, however, that the commission may designate one or more of its agents or employees to exercise such administrative functions, powers, and duties, as it may deem proper, under its supervision and control. No vacancy in the membership of the commission shall impair the right of a quorum to exercise all the rights and perform all the duties of the commission, except that the commission shall not take any final action on any matter to be submitted to the Legislature, pursuant to subsection 12 g. of this act, except by a vote of two-thirds of the full membership of the commission.

h. The commission shall prepare, adopt, and implement a master plan for the physical development of the park, or a portion thereof; review State and local actions that impact on the park to insure that these actions conform as nearly as possible to the commission's master plan; and coordinate and support activities by citizens' groups to promote and preserve the park.

i. On or before December 31 in each year the commission shall make an annual report of its activities for the preceding calendar year to the Governor and to the Legislature. Each such report shall set forth a complete operating and financial statement covering its operations during the year, all as more fully provided in section 15 of this act. The commission may, in addition, at any time request the Governor and the Legislature to appropriate funds for commission purposes, as more fully provided in subsection 12 g. of this act.

j. The commission shall cause an audit of its books and accounts to be made at least once in each year and the cost thereof shall be treated as one incurred by the commission in the administration of this act, and a copy thereof shall be filed with the State Treasurer and the Office of Fiscal Affairs.

k. (1) No member, officer, employee, or agent of the commission shall be financially interested, either directly or indirectly, in any project or any part of a project area, other than a residence, or in any contract, sale, purchase, lease, or transfer of real or personal property to the Department of Environmental Protection for inclusion in the Delaware and Raritan Canal State Park.

(2) Any contract or agreement knowingly made in contravention of this section is voidable.

(3) Any person who shall willfully violate any of the provisions of this section shall forfeit his office or employment and shall be guilty of a misdemeanor.

12. The commission shall have the following powers:

a. To adopt and from time to time amend and repeal suitable bylaws for the management of its affairs;

b. To maintain offices at such place or places within the State as it may designate;

c. To enter upon any building or property in order to conduct investigations, examinations, surveys, soundings, or test borings necessary to carry out the purposes of sections 13 and 14 of this act, all in accordance with due process of law;

d. To receive and accept, from any Federal or other public agency or governmental entity, grants or loans for, or aid of, the purposes of sections 13 and 14 of this act, and to enter into cooperative agreements with the Federal Government or any other public or governmental agency for the performance of such acts as may be necessary and proper for the purposes of sections 13 and 14 of this act;

- e. To enter into any and all agreements or contracts, execute any and all instruments, and do and perform any and all acts or things necessary, convenient, or desirable for the purposes of the commission or to carry out any power expressly given to the commission in this act;
- f. To conduct examinations and investigations, hear testimony and take proof under oath at public or private hearings, of any material matter, require attendance of witnesses and the production of books and papers and issue commissions for the examination of witnesses who are out of State, unable to attend, or excused from attendance;
- g. To petition the Legislature for specific direction or appropriation to accomplish commission objectives, in the event of substantial disagreement between the commission and the department.

13. a. The commission shall prepare, or cause to be prepared, and, after a public hearing, or public hearings, and pursuant to the provisions provided for in subsection 13 b. of this act, adopt a master plan or portion thereof for the physical development of the park, which plan may include proposals for various stages in the future development of the park, or amend the master plan. The master plan shall include a report presenting the objectives, assumptions, standards and principles which are embodied in the various interlocking portions of the master plan. The master plan shall be a composite of the one or more written proposals recommending the physical development and expansion of the park either in its entirety or a portion thereof which the commission shall prepare after meetings with the governing bodies of the affected municipalities and counties, and any agencies and instrumentalities thereof.

b. In preparing the master plan or any portion thereof or amendment thereto the commission shall give due consideration to: (1) the function of the canal as a major water supply facility in the State; (2) the necessity to provide recreational activities to the citizens of this State, including but not limited to, facilities, design capacities, and relationship to other available recreational areas; (3) existing historical sites and potential restorations or compatible development; (4) the range of uses and potential uses of the canal in the urban environments of the older, intensively developed communities through which it passes; and (5) designated wilderness areas to be kept as undeveloped, limited-access areas restricted to canoeing and hiking. In preparing the master plan or any portion thereof or amendment thereto the commission shall consider existing patterns of development and any relevant master plan or other plan of development, and shall insure widespread citizen involvement and participation in the planning process.

c. The commission shall act in support of local suggestions or desires to complement the park master plan. Consultation, planning, and technical expertise will be made available to local planning bodies that wish to implement land-use policy to enhance the park area. The commission shall act on or refer complaints by citizens' groups or private residents who discover hazardous situations, pollution, or evidence of noncompliance with use regulations.

d. The commission shall review and approve, reject or modify, any State project planned or State permits issued in the park, and submit its decision to the Governor.

14. a. The commission shall determine, after a public hearing, or public hearings held in Hunterdon, Somerset, Mercer, and Middlesex counties respectively, the extent and limits of the region to be designated the review zone. Any subsequent modification of said review zone shall be made by the commission only after public hearings in the county or counties in which such modification is to be made. All public hearings required pursuant to this section shall be held only after giving prior notice thereof by public advertisement once each week for 2 consecutive weeks in such newspaper or newspapers selected by the chairman of the commission as will best give notice thereof. The last publication of such notice shall be not less than 10 days prior to the date set for the hearing.

b. The commission shall approve all State actions within the review zone that impact on the park, and insure that these actions conform as nearly as possible to the commission's master plan and relevant local plans or initiatives. The State actions which the commission shall review will include the operations of the Division of Water Resources concerning water supply and quality; the Division of Parks and Forestry in developing recreation facilities; and the activities of any other State department or agency that might affect the park.

c. The commission shall review and approve, reject, or modify any project within the review zone. The

initial application for a proposed project within the zone shall be submitted by the applicant to the appropriate municipal reviewing agency. If approved by the agency, the application shall be sent to the commission for review. The commission shall review each proposed project in terms of its conformity with, or divergence from, the objectives of the commission's master plan and shall: (1) advise the appropriate municipal reviewing agency that the project can proceed as proposed; (2) reject the application and so advise the appropriate municipal reviewing agency and the governing body of the municipality; or (3) require modifications or additional safeguards on the part of the applicant, and return the application to the appropriate municipal reviewing agency, which shall be responsible for insuring that these conditions are satisfied before using a permit. If no action is taken by the commission within a period of 45 days from the date of submission of the application to the commission by the municipal reviewing agency, this shall constitute an approval by the commission. The commission's decision shall be final and binding on the municipality, and the commission may, in the case of any violation or threat of a violation of a commission's decision by a municipality, or by the appropriate municipal reviewing agency, as the case may be, institute civil action (1) for injunctive relief; (2) to set aside and invalidate a decision made by a municipality in violation of this subsection; or (3) to restrain, correct or abate such violation. As used herein: (1) "project" means any structure, land use change, or public improvements for which a permit from, or determination by, the municipality is required, which shall include, but not be limited to, building permits, zoning variances, and excavation permits; and (2) "agency" means any body or instrumentality of the municipality responsible for the issuance of permits or the approval of projects, as herein defined, which shall include, but not be limited to, governing bodies, planning and zoning boards, building inspectors, managers and municipal engineers.

15. The commission shall cause an annual audit of its accounts to be made, and for this purpose it shall employ a registered municipal accountant of New Jersey or a certified public accountant of New Jersey. The audit shall be completed and filed with the commission within 4 months after the close of the fiscal year of the commission, and a certified duplicate copy thereof shall be filed in the Office of Management and Budget in the Department of Environmental Protection, in the office of the Division of Budget and Accounting in the Department of the Treasury, and in the Office of Fiscal Affairs within 5 days after the original audit is filed with the commission.

16. There is hereby appropriated from the General State Fund to the Department of Environmental Protection the sum of \$25,000.00, or so much thereof as may be required, for the purposes of locating, surveying, and selecting those land sites and the abandoned section of the canal described in section 6 of this act, and the sum of \$50,000.00 for the use of the Delaware and Raritan Canal Commission in the performance of its powers and duties pursuant to this act.

17. This act shall take effect immediately.



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