DELAWARE AND RARITAN CANAL STATE PARK

Master Plan



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c.1

New Jersey Department of Environmental Protection

BRENDAN BYRNE
Governor

ROCCO D. RICCI
Commissioner

DELAWARE AND RARITAN CANAL STATE PARK:

Master Plan.

Adopted, May 1977

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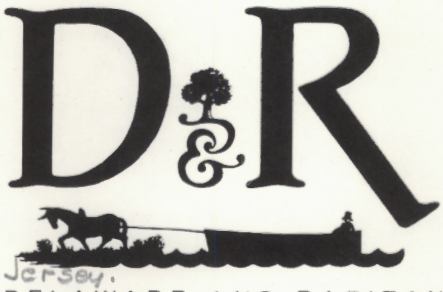

New Jersey.

DELAWARE AND RARITAN
CANAL COMMISSION.

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"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 . . ."

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Looking south into Kingston. *Photo, Historical Society of Princeton*

PREFACE

Master plans are prepared to fulfill many different kinds of functions. They come, therefore, in many different kinds of formats, each reflecting the special demands placed upon it. This master plan for the Delaware and Raritan Canal State Park directly reflects several specific needs that the Canal Commission felt must be addressed in developing the Canal Park. The Commission would, therefore, like to make those needs known so that the reader can understand the plan within the context in which it was prepared.

The first task that was asked of this master plan is that it clearly state the issues that must be faced in making a park along the sixty mile long canal. The second was an explanation of the Commission's goals for the park—a statement of how the Commission will deal with the issues it perceives. The third task that this plan was prepared to fulfill is to serve as a long-term guide to the development of the Canal Park. This does not mean a plan that explicitly states how all of the park will be developed, but it does mean a plan which can be used for many years as a framework to guide future specific site planning. Understanding this point is crucial to an understanding of the master plan. The Commission does not expect the State to start at one end of the Canal Park and develop everything that could be done for the entire sixty miles. Instead, some sites will be given first priority for development and when they are completed another set of sites will be given highest priority. The process of developing the Canal Park will take years—it may never be completed if the park responds to the changing needs of the community and its changing environment—and a plan is needed which can provide continuity for this long-term development.

A fourth task asked of this master plan is that it serve as a basis for the review zone. The Commission has land-use authority over the region around the park in order to protect the park from development that could produce a harmful impact. In order to protect the park it is first necessary to have a concept of what the park is and what it might become. The Commission believes that this plan describes what exists as well as the full range of the park's potential for development. The review zone will protect for that full range.

The final task of this document is to act as a natural resource inventory. Such an inventory will be useful in describing the present condition of the park, it will be a factor in the specific site designs when they are produced, and it will help with the review zone work. This inventory also helped the Commission understand what subjects need more work in order to have adequate information.

This plan was prepared by the Commission's staff with assistance from a wide range of people. The Commission's Executive Director has visited the planning boards of the Canal Park's neighbors, talking to them about the Commission's plans and learning from them how they would like to see the Canal Park developed. He also talked with the planning offices of each county through which the canal flows. Environmental Commissions throughout the Canal Park's region were consulted. The Commission has also consulted with private groups that are concerned about the Canal Park; the D & R Canal Coalition, the Princeton Historical Society, and the Stony Brook-Millstone Watershed Association all provided ideas. Many planning firms and organizations have generously contributed ideas and suggestions to the Commission, most notably the Middlesex-Somerset-Mercer Regional Study Council. Within the State government, the Commission received help from several agencies in the Department of Environmental Protection as well as from the Department of Community Affairs. Individuals who helped the Commission are listed in the acknowledgement page. Responsibility for the master plan rests, of course, solely with the Commission.

ACKNOWLEDGEMENTS

The Commission gratefully acknowledges the help of the following people in the preparation on this master plan.

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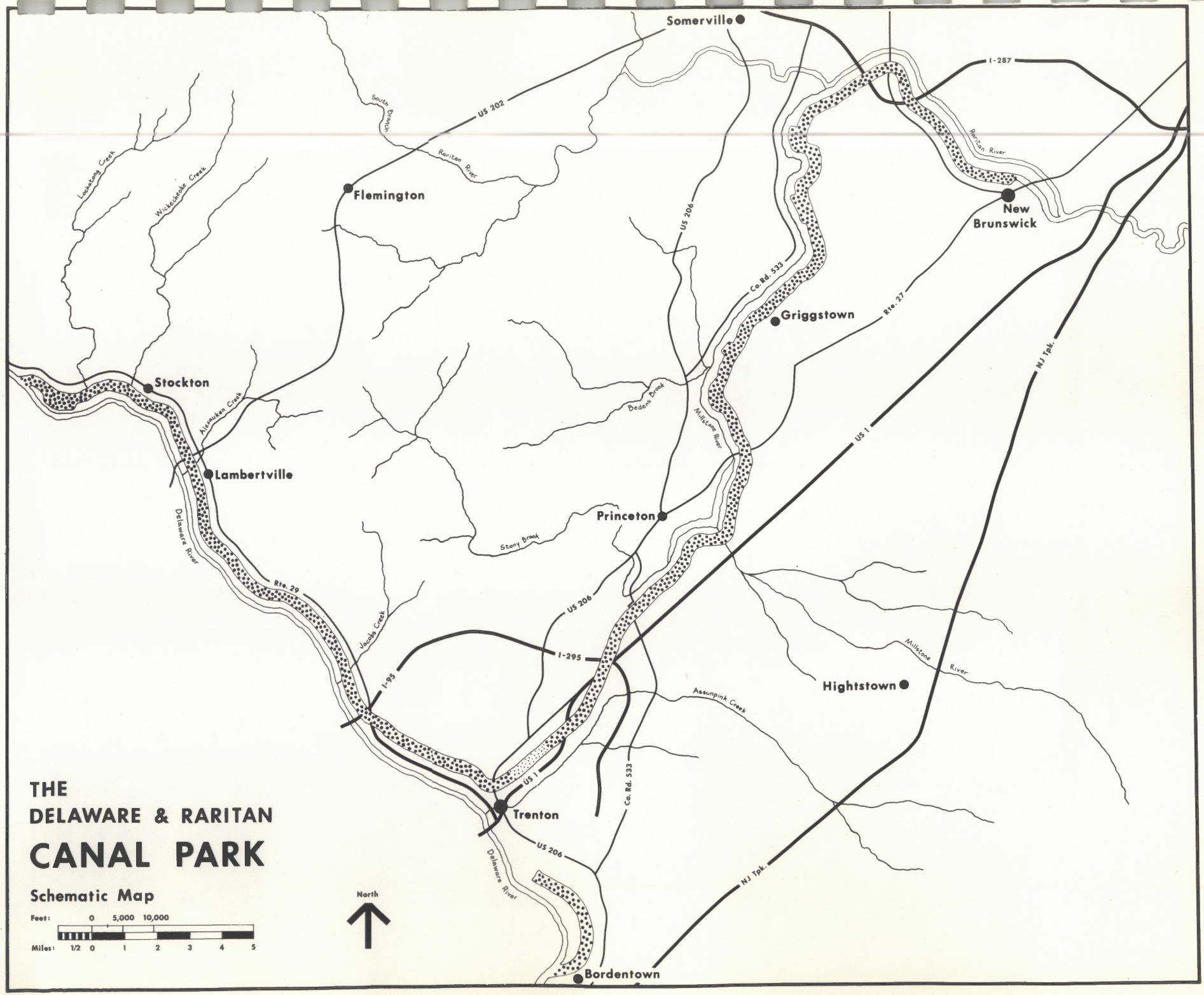
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New Brunswick
Griggstown
Rte. 27
NJ Tpk.
Stockton
Alexauken Creek
Bedens Brook
Millstone River
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Lambertville
Princeton
Delaware River
Stony Brook
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SECTION 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 generally 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 Bulls 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 8 feet, and stone riprapping 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 days was quite an improvement over the old record of up to two weeks for water travel from Philadelphia to New York.

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



Mules towing canal boal on the feeder. *Photo, Trenton Public Library*

opened; her population increased four-fold within a few years, and iron-works, ceramic factories, and many other businesses came 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.

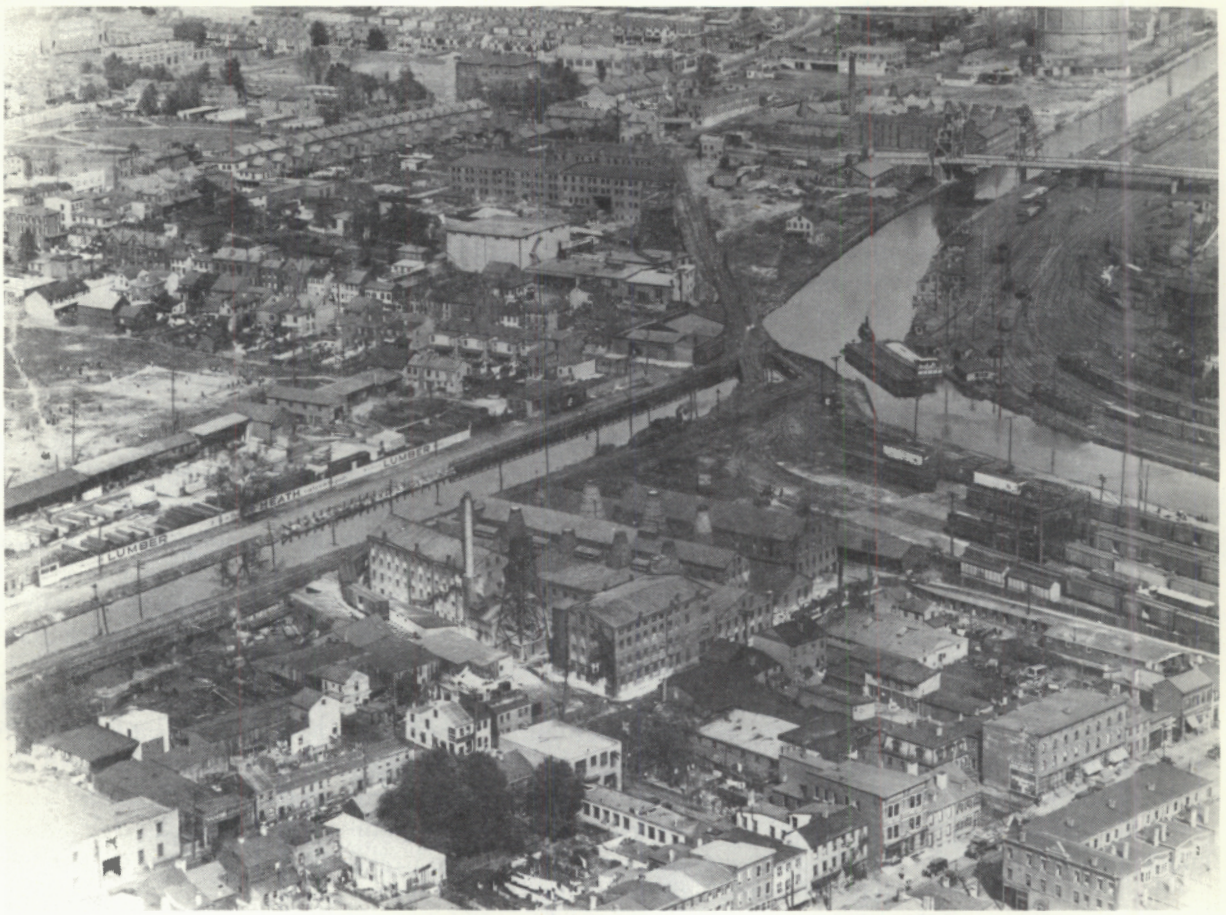
Another important event occurred in 1871. The Pennsylvania Railroad Company took a 999 year lease on both the canal and the Camden and Amboy's rail connection across the center of the State. From this time on the canal showed a steady decline. By 1893, the canal showed a net loss in its operations and it was never operated profitably again. There were a combination of reasons for this decline but the most important reason 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.

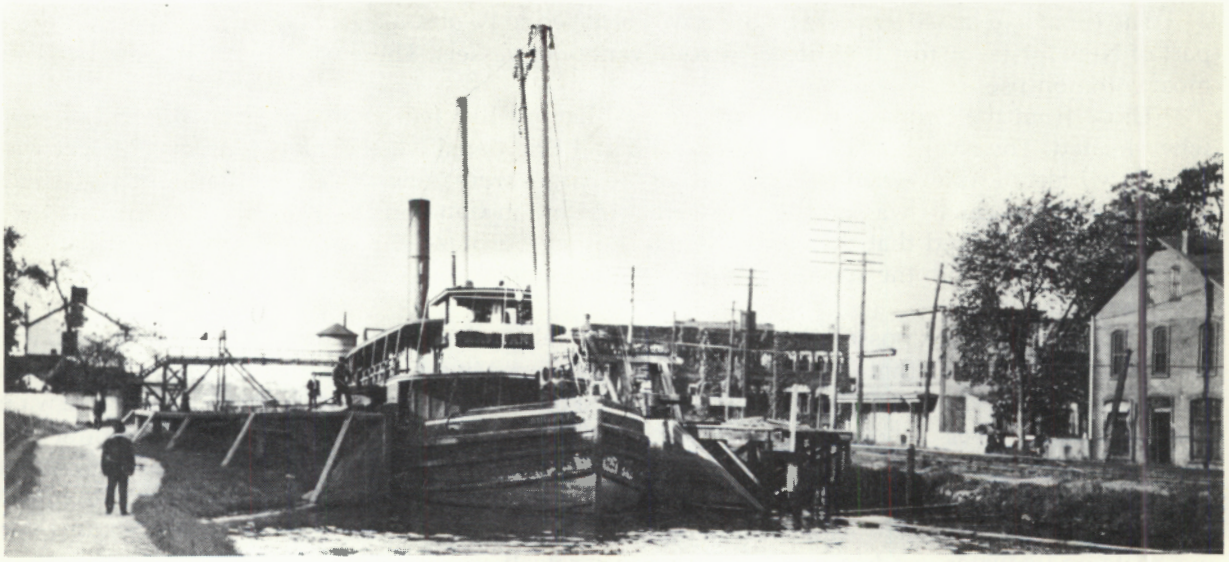
The canal had lasted 99 years before it was believed to be obsolete. It had witnessed an important part of New Jersey history and hosted a wide variety of vessels. There were two classes of barges in most common use.

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 barges 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. The studies 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.



The junction of the feeder and the main canal in Trenton. This picture, taken about 1925, shows two barges on the main canal being towed by a tugboat. Just around the bend from the boats is the Southard Street bridge. This part of the main canal is now covered by U.S. Route 1. (Below) Steam tug going through lock in Trenton. *Photo, Ed Bates*



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 streams, were replaced with 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.

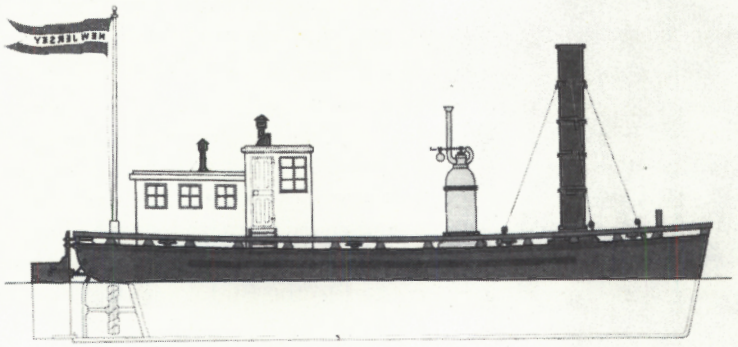
The Bureau of Water Facility Operations, the canal's only official guardian for more than 30 years, has had to keep a constant watch over this man-made waterway. Culverts and other structures often need to be replaced or repaired, and when serious flooding occurs, there is often extensive work required 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 74.9 million gallons of water per day, bringing the State an annual income of over one million dollars.

In 1973, the Delaware and Raritan Canal and 17 structures relating to the canal were put on the National Registry 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 important change in benefactors from the canal. Like much of what has happened in New Jersey, the canal was originally benefiting New York and Pennsylvania more than New Jersey. Now, however, the canal is a great asset to the State. The Canal Park enhances several



The Lottie B in front of the Railroad Hotel at the Alexander Road crossing in Princeton. *Photo, Historical Society of Princeton*

urban areas and provides a corridor for conservation and recreation through the densely populated Central New Jersey area. It is not only an historic site itself, but it links together many other sites that are significant in the Garden State's development, and it provides water to industry, agriculture, and to municipalities in the State. The future of the Delaware and Raritan Canal should be as interesting as its past.



NEW JERSEY (ROBERT F. STOCKTON)

Delaware and Raritan Canal Company

63.4 × 10.0 × 7.0 feet ℄ 33 T ℄ 19,324 × 3,048 × 2,134 m

Steam tugs like the Robert F. Stockton were used to pull canal barges from the 1850's onward. *Photo, William J. McKelvey, Jr.*

CHAPTER 2: VISIONS OF THE PRESENT

Environments of the Canal Park

Although State parks come in an infinite variety of shapes, they usually have extensive lands, massed together in such a way that most of the land is interior parkland. This kind of park can allocate a small amount of its land around the perimeter to serve as a buffer between adjoining, privately-owned land 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—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 by 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 examined by car on a road bordering the park. The Commission has, however, also examined aerial photographs of the entire park and studied land use, zoning, tax, and master plan maps from the adjoining municipalities.

The Commission found a limitless variety of environments. Downtown Trenton and Hunterdon County's Delaware Township present a very dramatic difference. 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 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 1, the landscape seems to have lost its human scale: huge structures stand unused, sumac is growing wildly, rats leisurely patrol the bank, and a superhighway 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 emerged from the Commission's study of the park's environments. These common elements have directed the generalizing of the environments into six 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 areas, 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 but natural conditions dominate the area. The most common rural environment in the Canal Park is one in which there is a



The Millstone River is part of the Canal Park from Kingston to Zarephath. This scene is near Rocky Hill.

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 feeder canal with very little development adjacent to the canal but with railroad tracks on one bank and a busy State highway on the other bank. There is no towpath in these sections and the park is confined to the canal and a few feet of land on each side.

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 map entitled "CANAL ENVIRONMENTS", and in the following table with the same name, the Canal Park is divided into segments which show where each of these environmental types prevails.

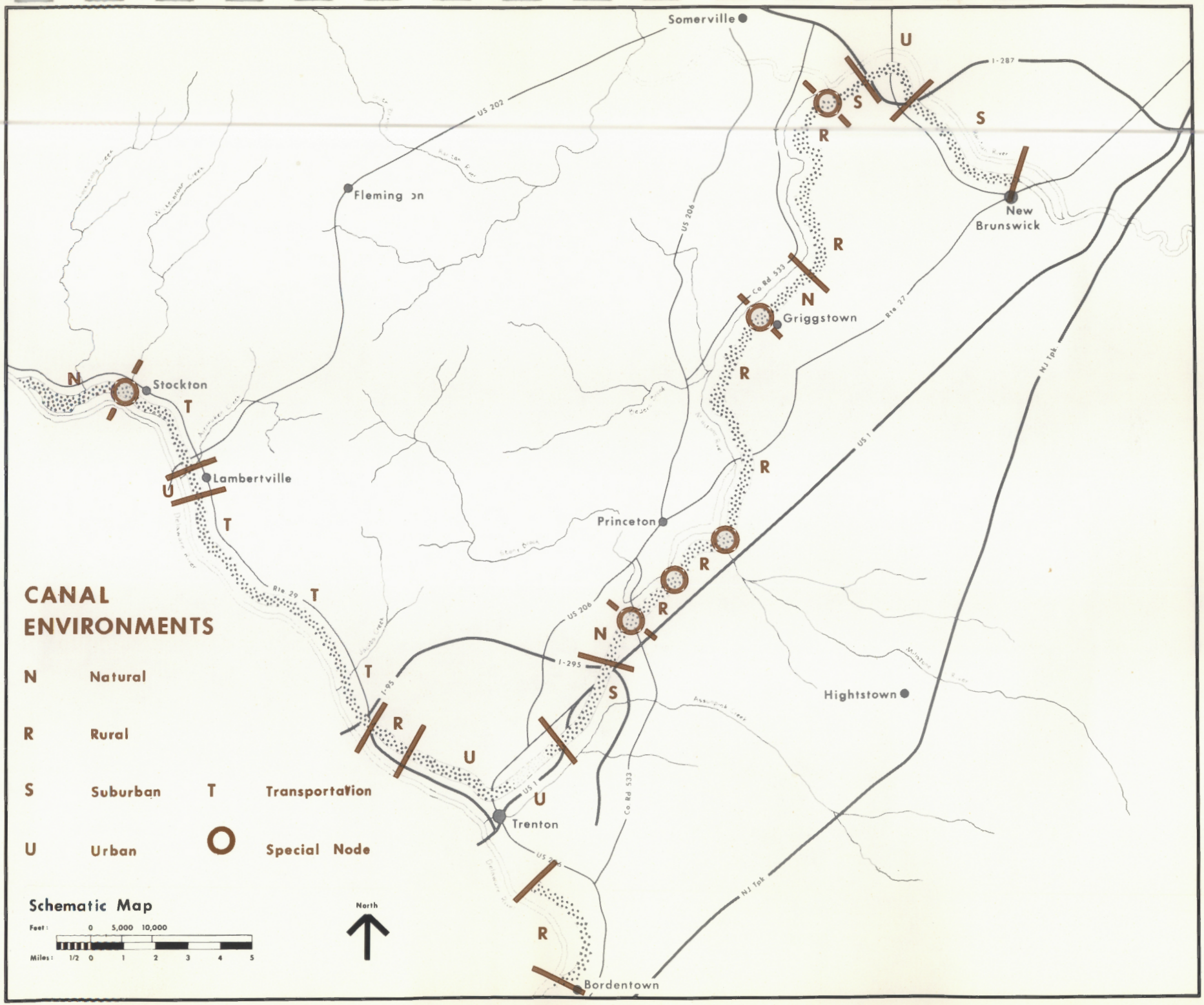
CANAL ENVIRONMENTS

SECTION OF THE PARK	ENVIRONMENT	COMMENTS
From Intake at Bulls Island to Smith's Mill (3 miles)	natural	The canal is very close to the Delaware River for this whole section. On the north the Belvidere & Delaware line of the Penn-Central is usually about 1000 feet away and N.J. Route 29 is not far from that. The Canal Park, however, is well protected by a dense growth of trees and the impression is clearly natural. The only exception is the short section from the intake to the bridge leading onto Bulls Island. From that section a few structures can be seen.
Smith's Mill	special node	This is an exceptionally attractive collection of historic buildings, owned by the State. The main building is a mill which predates the canal. The Wickecheoke Creek joins the canal here. There is State-owned open space around the buildings that could be used for their development.



A section of the natural environment between Bull's Island and Stockton.

SECTION OF THE PARK	ENVIRONMENT	COMMENTS
From Smith's Mill to east end of Stockton (crossing of railroad tracks) (1 mile)	suburban	From Smith's Mill to Stockton the environment is more rural than suburban but from the center of Stockton to the RR crossing there are houses whose back yards come right down to the canal's north bank. To the south, there is a narrow band of land separating the canal from the Delaware River.
From east end of Stockton (crossing of RR tracks) to Route 202 bridge (1.5 miles)	transportation	There is very little development in this section but the RR tracks are right on the south bank and Route 29 is right on the north bank.
From Route 202 bridge to Lambertville lock (1.25 miles)	urban	This is an excellent urban area. The Jimison farm near Rt. 202 and the lock at the south end of town provide potential recreation areas. The towpath already provides access to most of the town. There is some very nice undeveloped floodplain land between the canal and the Delaware River.
From Lambertville lock to Upper Ferry Road. (9.5 miles)	transportation	This is a long section but it is described as a single unit because the railroad runs alongside the canal and a road is close on the other side. Development is scattered along the entire length. There are a number of special areas, most notably Washington Crossing State Park. Others are: the large field about 1 mile downstream now owned by PSE&G, the area around Scudders Falls, and a very pleasant section (about ¼ mile) just below Washington Crossing.
From Upper Ferry Rd. to Lower Ferry Road. (1.5 miles)	rural	Although the railroad is still next to the canal, the road is not and most development is far enough away to qualify this section as rural. Between the Reading bridge and Lower Ferry Rd. there is a very nice turning basin surrounded by woods.
From Lower Ferry Rd. to entrance into culvert near Old Rose St. (4 miles)	urban	It is impossible to describe this very complex section in brief. The City of Trenton's published book on the *D & R Canal and Cadwalader Park* should be consulted.
From Crosswicks Creek to Sturgeon Pond (3.6 miles)	rural	The area around the outlet is very densely covered with vegetation. There are no signs of the houses that once occupied the land. There is also no access to the lock except by boat or by walking accross a railroad trestle. The canal is close to Duck Creek until about at the power plant and the railroad tracks are alongside for the entire length. Just past the power plant the canal disappears. Mercer County's Roebling Park is near the end of the canal.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T Transportation
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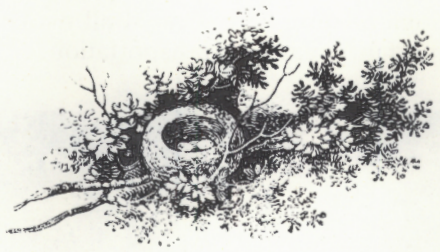
North

SECTION OF THE PARK	ENVIRONMENT	COMMENTS
From near Old Rose St. to Mulberry St. (1 mile)	urban	There is no canal to be seen here because it is in a culvert. Route 1 is immediately adjacent; so are many industrial buildings.
From Mulberry St. to Whitehead Rd. Rt. 1 crossing and ELSA plant (1 mile)	suburban	This area is very diverse. Route 1 is close to the canal, parts of the canal are laced with steel beams supporting the highway, many active and abandoned factories line the banks. Yet there is also much open space and some beauty.
From Whitehead Rd. to Interstate I-295 crossing (3 miles)	suburban	This is an interesting area. It is very near heavy industrial development and Rt. 1 to the west and the Assunpink floodplain to the east. It seems to be neglected and as a result it is thick with trees.
From I-295 crossing to Provinceline Road (1.3 miles)	natural	Although I-295 and Route 1 can be heard within some of this section of the park, the area is undeveloped and extremely attractive.
From Provinceline Rd. to Quaker Bridge Rd. (.5 mile)	special node	There is doubtless going to be intense pressure on this crossing because of the two shopping centers on Rt. 1. At the present time there is a small group of houses—the remains of "Port Mercer"—, a sod farm, and a cow pasture.
From Quaker Bridge Rd. to Alexander Rd. (2.2 miles)	rural	This section is very close to being natural but there is a golf course, a water works, and West Windsor's plan for intense development. The Princeton Institute Woods is adjacent to the Canal Park here and it is a great asset to the park.
From Alexander Rd. to Penn. RR crossing	special node	This is a very interesting area that is being developed by Princeton to emphasize its historic importance and recreational access.
From Penn. RR crossing to Millstone Aqueduct (1.2 miles)	rural	On both sides of the Canal Park in this section, the land is owned by Princeton University. It is a lovely area, undeveloped, yet open with long vistas across the lake.
Millstone Aqueduct	specia node	This is a very interesting spot because the Millstone, the canal, and Lake Carnegie come together yet are clearly defined.
From Millstone Aqueduct to Kingston Rt. 27 crossing (2.1 miles)	rural	The lake is very close to the west and for most of this section there is a road very close to the east. The road is lightly travelled, however, and development along it is light.

SECTION OF THE PARK	ENVIRONMENT	COMMENTS
From Rt. 27 Kingston to Rt. 518— Rocky Hill (1.9 miles)	rural	Parts of this section are natural but there is a railroad track, occasional houses and the trap rock quarry. We begin a long relationship here with the floodplain of the Millstone. Both the quarry and the Millstone are genuine assets to the park.
From Rt. 518 Rocky Hill to Griggstown Causeway (2.5 miles)	rural with natural access	To the east a road is very close to the canal but development is light and is more often than not an asset because it is chiefly 18th century and 19th century farm houses. To the west is the Millstone floodplain. It provides an excellent barrier against development.
Griggstown Causeway	special node	Several important park uses are focused on this spot. There are important historic sites on the causeway. The causeway serves as a focus for the historic Griggstown community. It is also one of the most popular recreational access points. The proximity of the natural environment makes it important for access for nature studies.
From Griggstown Causeway to Suydam Rd. (2.2 miles)	natural	This section, more than any other in the Canal Park, is away from signs of man's impact. There are heavy woods on both sides of the canal.
From Suydam Rd. to 10 Mile Lock. (5.4 miles)	rural with natural access	This is a very attractive section of the canal with the Millstone's floodplain on one side and, except for a short section north of East Millstone, a lightly travelled road on the other. At Blackwells Mills, East Millstone, and Zarephath there is interesting development for very brief stretches. The proposed Six Mile Run Reservoir is a neighbor at Blackwells Mills. Somerset County's Colonial Park is adjacent to the Canal Park near East Millstone and Rutgers University's Hutchinson Memorial Forest is near the Canal Park in the same area.
10 Mile Lock	special node	The lock itself is not much different from others but it is adjacent to the confluence of the Millstone and the Raritan and that makes this an interesting spot.
10 Mile Lock to Western I-287 crossing (1.2 miles)	suburban	On the north side is the Raritan and beyond that the American Cyanamid plant. On the south, an area that is beginning to attract orderly industrial plants. There is, however, an openness about the environment that softens the impact of the industrial development.

SECTION OF THE PARK	ENVIRONMENT	COMMENTS
From Western I-287 to 5 Mile Lock (2.5 miles)	urban	The Raritan continues near the canal and keeps the area from being defined on both sides by urban development. The South Bound Brook lock has some nice space around it. There are two good apartment developments and two historical sites. There is, downstream from the GAF plant, some land between the canal and the Raritan that is now unused but was once the town dump.
From 5 Mile Lock to Landing Lane Bridge (3.7 miles)	suburban	The Raritan is very close on the east side of the canal and Easton Road is quite close on most of the west side. Commercial development is intruding without much concern for the existence of the Canal Park. At the Landing Lane Bridge there is access to Buccleuch Park and Johnson Park.



Present Uses of the Canal Park

Use as a water resource: At the present time the canal is used as a conduit for the supply of water to farms, industry, fire companies, and people. Nearly 600,000 residents of Central New Jersey rely upon the canal as a source of all or part of their household water. In order to maintain the canal as a viaduct, the Division of Water Resources, in the New Jersey Department of Environmental Protection, has had to keep a constant watch over its sixty mile length. A flood guard embankment must be maintained along much of the canal to protect the canal from the Delaware, the Raritan, the Millstone, the Assunpink, and the Stony Brook Rivers. There are 34 major culverts carrying natural streams under the canal and there are spillways, sluice gates, aqueducts, and other structures designed to control the flow of water in the canal.

Use as a recreational site: Long before it became a State Park, people have been enjoying the canal as a place for recreation. It has become a popular site for boaters, and there are commercial boat rental agencies along the canal in Titusville, Kingston, Griggstown, and East Millstone. Hikers, joggers, cyclists, and horseback riders can find a path along the canal from Whitehead Road in Lawrence

Township all the way to the end of the park in New Brunswick. Bulls Island contains trails, picnic and camping facilities plus a pedestrian bridge across the Delaware River which provides a connection with Pennsylvania's Delaware Canal. Picnicking and camping are possible—without facilities—at any place in the Canal Park, but the wider sections of the park in the valley of the lower Millstone are the best suited sites for these pursuits. Bird watchers and nature lovers can find satisfaction throughout the park. The Commission hopes to see all of these recreational pursuits enhanced by proper development but the Delaware and Raritan Canal State Park provides many opportunities right now.

For more detailed information, the reader is advised to consult Betty B. Davison's excellent THE DELAWARE AND RARITAN CANAL: A USER'S GUIDE FOR HIKERS, CANOEISTS, FISHERFOLK, HISTORY BUFFS, BIRD WATCHERS, AND LOVERS OF THE GREAT OUTDOORS. The book is as good as the title is long.

Use for conservation of natural resources: Most of the Canal Park lies in the floodplain of one of the adjoining rivers. Thus, much of the park has remained in an undisturbed natural state while the rest of Central New Jersey has been undergoing intensive development. The preservation of the vegetation along the Canal Park has encouraged the development of a rich animal life in the park. Bird watchers, naturalists, or others interested in nature will find a wide variety of natural resources in the park. Those areas indicated on the CANAL PARK ENVIRONMENTS chart as natural or rural would be the best places to see the park's use as a means of conserving natural resources.

Use for historic preservation: The canal itself is a registered State and national historic site. One can hardly be near it without being reminded of the nineteenth century. The straightness of the waterway, its regular width, its stone lining, the adjoining towpath with the milestones, the remnants of the locks, and the many buildings relating to the canal all evoke a time in America's past when artificial waterways were an important means of transportation.



The stone lining of the canal's bank, called rip-rap, is a constant reminder that the canal is a 19th century man-made artifact. Above, near Stockton.

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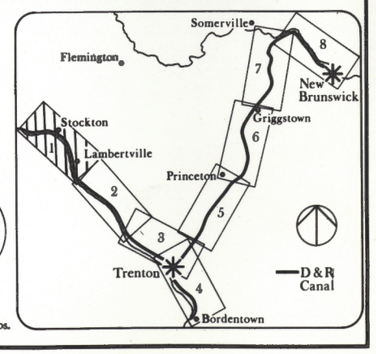

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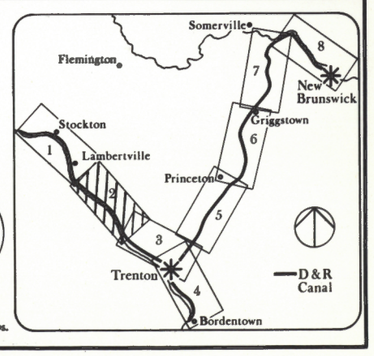

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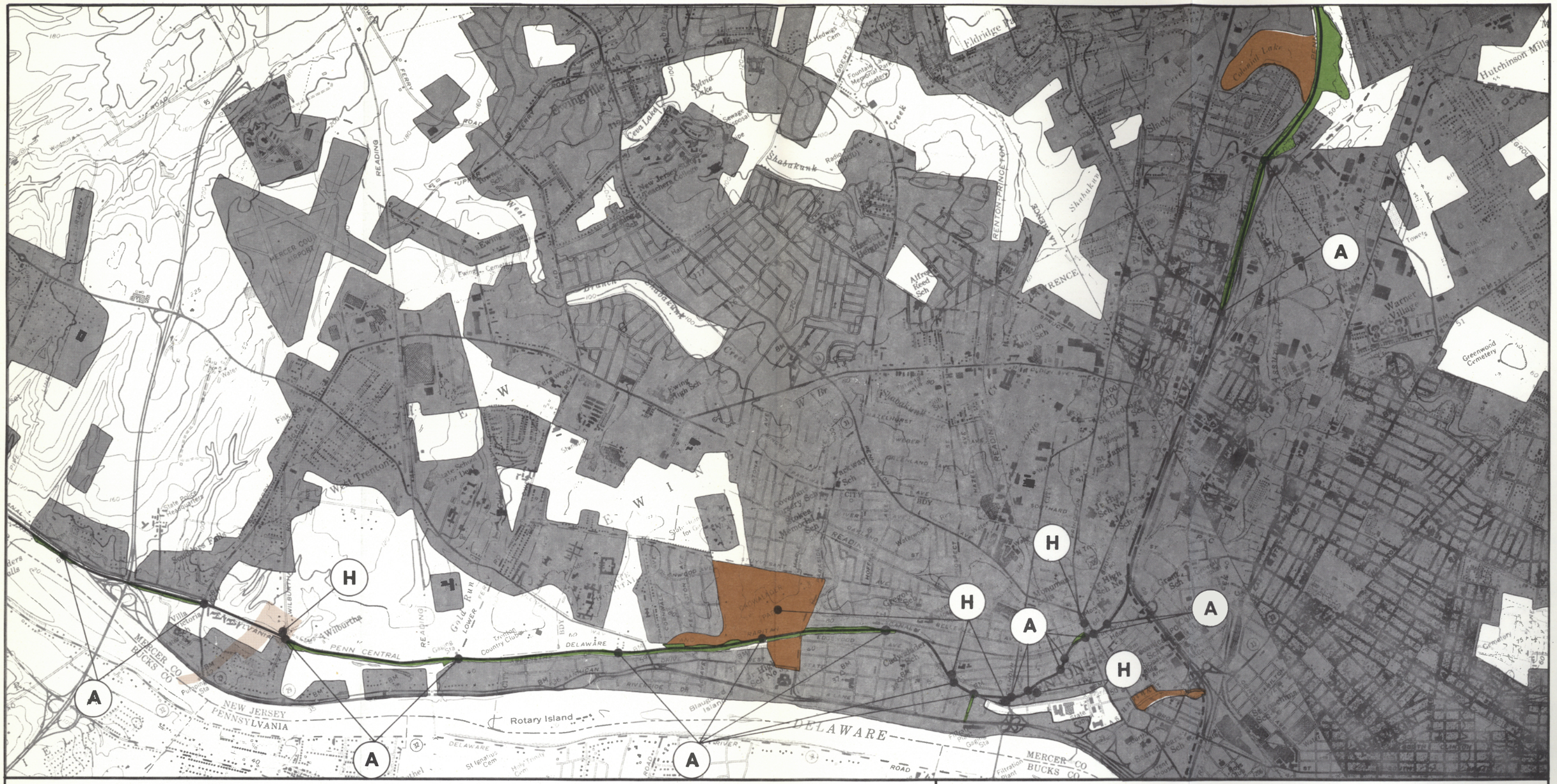

CANAL PARK

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- HISTORIC DISTRICT
- DEVELOPED LAND

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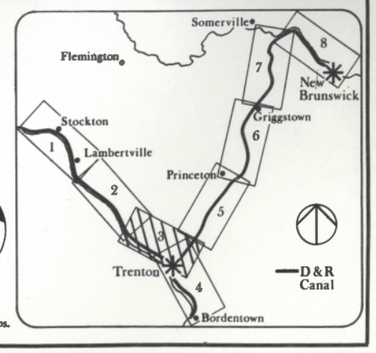

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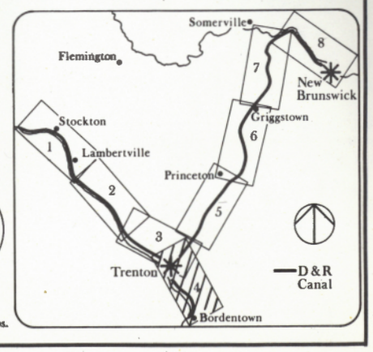



CANAL PARK

- D&R CANAL
- (L) LOCK
- (A) ACCESS POINT
- (H) HISTORIC SITE
- CANAL PARK LANDS
- PUBLIC OPEN SPACE
- SEMI-PUBLIC OPEN SPACE
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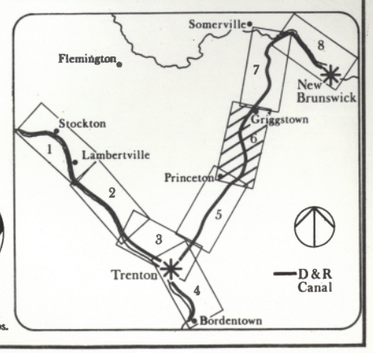



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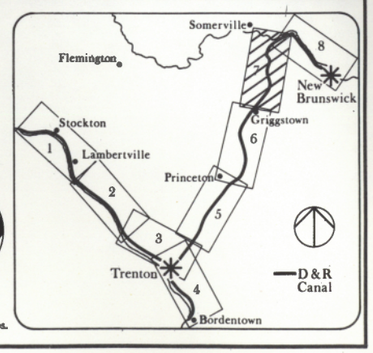

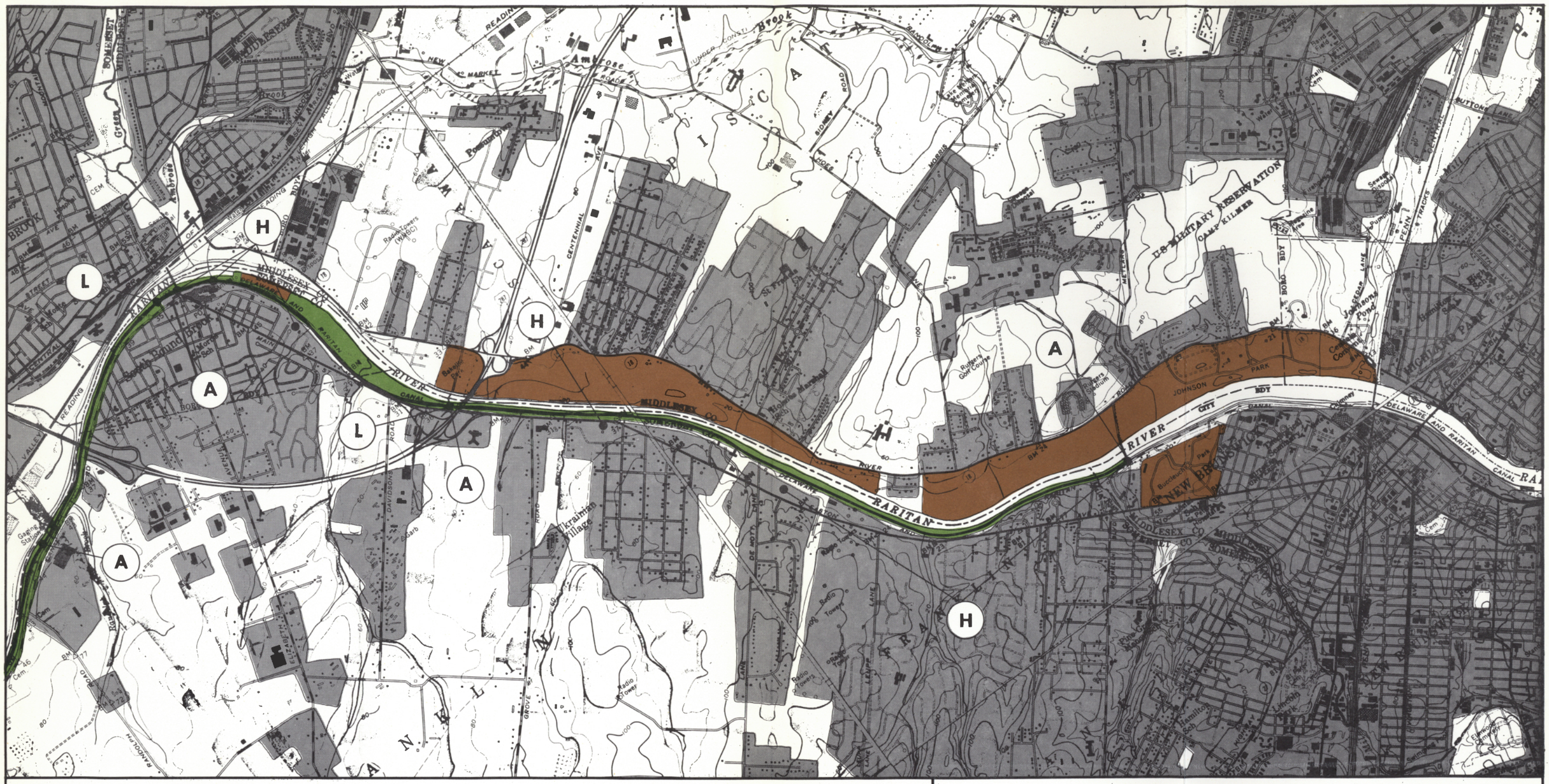
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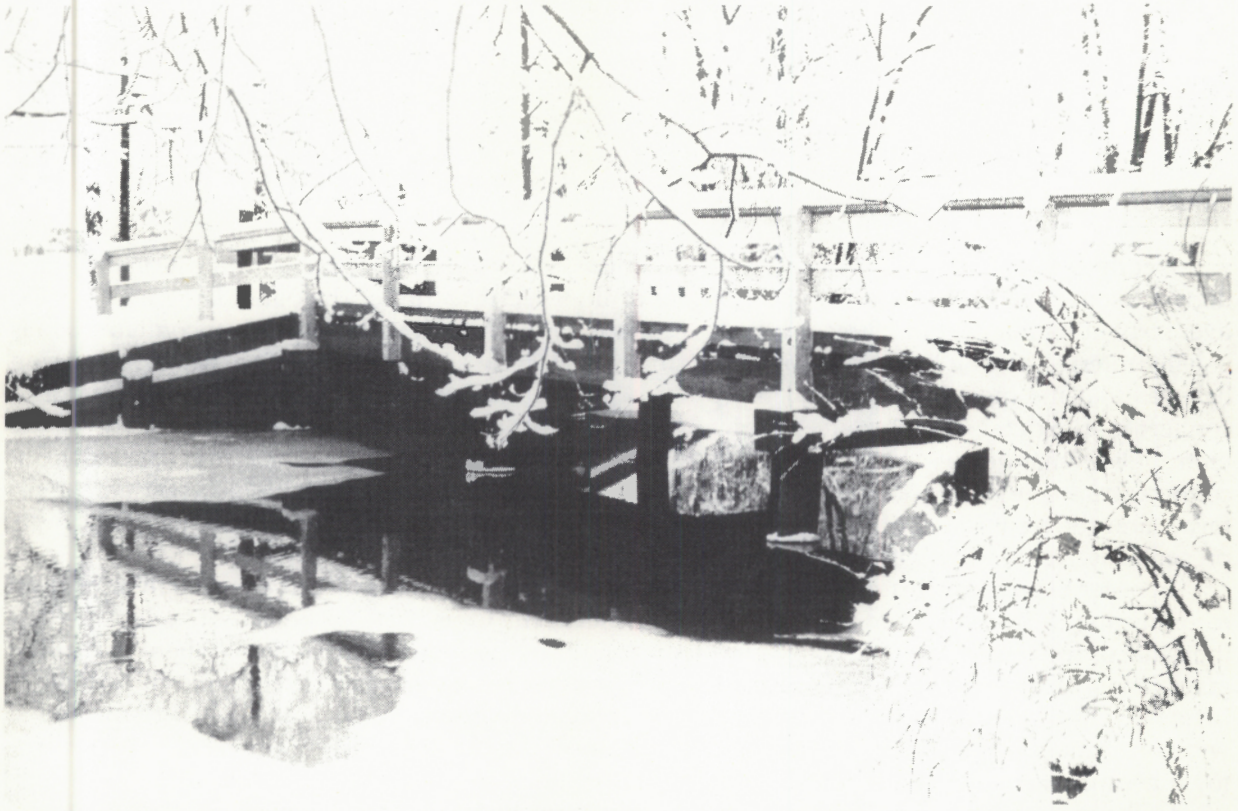

Many bridges were built to allow farmers to get to their fields if the canal separated farmhouse from field. Now they provide access to the towpath and serve as focal points for the park user. Above, near Griggstown.

Other kinds of history can also be appreciated in the Canal Park. The natural history enthusiast can follow the canal as it leads from one of New Jersey's geological formations to another. The influence on the land of the canal's neighboring streams can be observed. The impact on the region's hydrology and vegetation patterns from the building of the canal are apparent to the careful observer.

More detailed information of the Canal Park's historic uses can be found in subsequent sections of this report.

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CHAPTER 3: VISIONS OF THE FUTURE

General Goals for Development

Nearly every goal held by the Canal Commission for the development of the Canal Park is derived from the Commission's understanding of the special nature of the park. The Canal Park is over sixty miles long yet in places is less than 100 feet wide. A park with this kind of 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 recreation sites; and it connects present-day New Jersey with its nineteenth century heritage.

In order to promote this role of the Canal Park, the Commission has placed a very high priority on reconnecting those sections in which there are breaks in the Canal Park. A break occurs when either the canal or the towpath are stopped. The most obvious of these occurs in Trenton, where part of the main canal has been filled in and built upon while another section has been placed in a culvert and is invisible. Throughout Trenton the canal has been broken into fragments because it is not accompanied with a continuous path. It may be impossible to connect the old main canal from Trenton to Bordentown because a portion of a major state highway is planned for that part of the canal bed that is now filled. The rest of the Canal Park in Trenton can, however, be made a stronger connector and the Commission will work toward that goal.

There are also problems of continuity along most of the feeder canal, where the towpath has disappeared. Squeezed into a corridor that includes the Delaware River, the park, the Belvedere-Delaware Branch of the Pennsylvania Railroad and New Jersey Route 29, this is the narrowest section of the Canal Park. Presently, the Belvedere-Delaware line—except for a section about one mile long in Lambertville—is in the process of being abandoned. If the railroad right-of-way is abandoned and acquired by the State, the Commission heartily supports the proposal of the Department of Environmental Protection that the railroad right-of-way be used for a path that would provide recreational and maintenance access to the Canal Park. That development would greatly strengthen the Canal Park's role as connector.

A third serious break in the Canal Park occurs at the U.S. Route One bridge over the canal in Lawrence Township. This bridge is so low and compact that there is no pedestrian passage under it and boat passage is difficult.

Another general goal of the Commission deals with the kind of State park the Canal Park will become. A distinction is usually made between the kinds of parks that ought to be the responsibility of the State and the kinds of parks that ought to be the responsibility of the municipalities or counties. This distinction is based on an understanding of who will use the park. The political area from which the park user comes usually is assigned the responsibility for establishing and maintaining the park. Thus, a neighborhood lot probably would not draw people from beyond a short distance, so it ought to be the responsibility of the municipality to develop and maintain. A larger park, which might, for example, contain a golf course or extensive courts or fields for outdoor sports, might draw people from several neighborhood municipalities. This kind of park is usually thought to be county responsibility. The State is assigned responsibility for parks that provide a service for residents of the entire state, or at least for an area that includes several counties.



The towpath has been separated from the canal by a line of trees, but it still exists in most parts of the park. Above, near Blackwell's Mills.

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 can not be developed at any one place to accommodate more people than are usually considered appropriate for a municipal park.

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

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 specific 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 site.

Another of the Commissioner's goals relating to the linear quality of the Canal Park comes from the special problems presented to those who try to police and maintain a linear park. It is impossible to have a staff large enough to provide really effective policing and maintenance for a sixty mile long park. The Commission believes, however, that this problem could lead to the Canal Park's greatest strength. Since it is impossible to provide the usual professional oversight of the Canal Park it seems obvious that the success or failure of the park will depend upon the involvement of the people who use it. The park will only succeed if people care about it and want to help it succeed. The Commission realizes that there are large numbers of people who do care about the Canal Park—the very existence of the Canal Park is the result of the efforts of people outside the government. It is, therefore, a goal of the Commission that the evolution and fulfillment of its plans be undertaken with the maximum amount of public participation and agreement. By making sure that the Canal Park becomes what the people want it to be, the Commission hopes to ensure the continued effort of these people to keep the park a valuable asset to New Jersey.

The Commission does not, however, wish to limit involvement in the Canal Park's development to private groups of citizens. Governing bodies of counties and municipalities are also encouraged to participate in the development of the Canal Park. The Commission hopes that neighboring municipalities and counties will develop their own parks adjacent to the Canal park. By doing so, both the Canal Park and the local park will be enhanced by the presence of the other.

The Delaware and Raritan Canal State Park has the potential for providing a great diversity of park uses. The Commission hopes to see a wide range of recreational opportunities available throughout the park's length. The park can be a site for casual observance of nature, or as a laboratory for more serious outdoor education projects. It is a vital reminder of New Jersey's historic heritage. It should be a source of inspiration for artists working in many media. While the Canal Park is doing all of these things, it will also continue to be the source of raw water for much of central New Jersey.

Water Resource Goals

The Delaware and Raritan Canal is a vitally important source of water for Central New Jersey. The Bureau of Water Facility Operations, a part of the New Jersey Department of Environmental Protection, has the responsibility of maintaining the canal as a source of water. At present there are contracts for the sale of 74,904 million gallons of canal water per day; of this total, 55 million gallons are used for municipal water supplies, 9.5 million gallons for industrial use, and the rest is for fire standby and agricultural use.

The principal municipal users of the canal water are New Brunswick, North Brunswick, East Brunswick, and Princeton. The Elizabethtown Water Company buys a large amount of canal water for potable use but it is rather difficult to trace exactly where it goes because it is processed and then mixed with water from other sources. If the canal water were not available these Central New Jersey cities would probably have to bring water a long way to supply their needs. 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. The Commission received a plan for the long-term improvement of the canal prepared by the Bureau of Water Facility Operations *(Delaware and Raritan Canal: Water Supply Management Operation and Maintenance Improvement Program Plan, 1 July 1975)* and the Commission expects to guide development of the Canal Park in such a way that it does not conflict with the water supply plan.

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 of 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 biotic system in the Canal Park. The Commission has, therefore, established the following goals:

- Prevent further pollution (either contamination or sedimentation) and improve the quality of all streams that enter the Canal Park.
- Prevent the further pollution and improve the quality of the ground water that enters the Canal Park.
- Prevent unwanted changes in the quantity of water (whether from run-off, streams, or from ground water) that enters the Canal Park.

Recreation Goals

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 an asset to each municipality through which it passes, as well as an asset to the State. This means that zoning ordinances, master plans, and present land use will have to be studied and accommodated by the Canal Park's development.

Elsewhere in this master plan there is a list of all the access points. This information, along with the population information also included in this plan, produces a general understanding of how the Canal Park relates to the present land use. (See map entitled "ACCESS AND CIRCULATION".) The Commission will tie recreational development to information on access, the present location of population, and projections for future population sizes.

Many municipalities have already developed recreational areas along the Canal Park. Lambertville, Stockton, East Millstone, and Rocky Hill have small neighborhood parks adjacent to the Canal Park. Cadwalader Park in Trenton, Colonial Park in Franklin Township, the Port Mercer Conservation Area in Lawrence, and the Princeton Wildlife Refuge in Princeton Township are all excellent neighbors for the Canal Park.

Other municipalities have plans to develop parks next to the Canal Park. Trenton is working toward the rehabilitation of Cadwalader Park so that it focuses more sharply on the canal. They also hope to develop a neighborhood park on the west side of town and a major urban park in the heart of the city—both of which would be next to the canal. Both the State and the City of Trenton have plans for a path along the canal, reaching from the Trenton Battle Monument all the way to Washington Crossing State Park. Franklin Township has also developed plans to acquire a small parcel of land with a historic house and develop that as a park neighboring the canal. South Brunswick's master plan includes a a park along the canal just south of Kingston but that proposal is still a long way from realization. In Princeton, the Township Environmental Commission and the Princeton Historical Society are working together to develop a parcel of land next to the canal for recreation and for rehabilitation of a valued historic site.

The Commission is eager to have municipal and county parks adjacent to the Canal Park. These parks add their special qualities to the Canal Park just as the Canal Park enhances the local parks. But residential and commercial development adjacent to the Canal Park is expected in many areas. Appropriate types of this kind of development will also be encouraged as specific development plans for the Canal Park evolve.

Recreational development also must be related to the recreational facilities already available in the area and the needs and wants of the people who will use the Canal Park.

The STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN (SCORP), published in 1973 by the New Jersey Department of Environmental Protection, attempts to catalogue existing recreational facilities and determine the needs of New Jersey citizens. SCORP indicated a need for the kinds of recreational opportunities that the Canal Park can logically provide. Aside from the very general category of "Outdoor Games and Sports", the three activities most in need of facilities in 1970 were bicycling, boating, and horseback riding. These are all appropriate for the Canal Park. Hiking and picnicking were not in as great a need for facilities in 1970, but anticipated future needs and supplies showed that both these activities will need facilities for future users. The Commission will work closely with the SCORP guidelines in developing the Canal Park for recreational use.



Canoeists enjoy the solitude near Griggstown.

Historic Site Goals

In 1973 the canal itself and seventeen structures relating to the canal were placed on the National Register of Historic Places. There are also a large number of historic sites adjacent to the Canal Park but unrelated to its history. These sites are important because they are focuses of interest along the park. Occasionally they are grouped close enough together to dominate an environment but generally they accent an environment that is really defined by other features. If the historic qualities of the canal are properly developed, these sites will have a meaningful environment. It is, therefore, imperative that an understanding of the canal's historic qualities be developed.

The historic qualities of the canal go far beyond its architectural features. These features are of great value—the old locks, often with some of the hardware left in the stone walls, the canal houses, the old bridges, even the stones that line the banks can be appreciated for their intrinsic aesthetic qualities. But each of these architectural features is only a part of the important story the canal can tell about New Jersey's past. The canal speaks of a time when people and products travelled less often and at a greatly reduced rate; it also shows that the experience of travel was once far more important than it is today. The canal is also a dramatic example of man's bustling impact on the land. Remnants of land-use patterns that evolved because of the canal remain, as do the changes in hydrology and vegetation that were caused by the building of the canal. The canal can also be a key to understanding aspects of the State's natural history because it connects two of the major physiographic provinces in the State—the Piedmont and the Inner Coastal Plain.

By developing the Canal Park in such a way that an appreciation for all of these historic qualities 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 an 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. In addition to developing the canal's historic qualities, the Commission will, in some cases, recommend that the State acquire land so that historic sites will be physically connected to the park. At the least, the Commission will provide information that can call attention to the sites and help park users see their value.

Urban Enhancement Goals

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.

There is also an important role that the Canal Park can play in introducing vegetation and open space into the urban areas. At the present time the canal's edge in urban areas is lined with the kinds of plants that thrive in areas that show a high degree of interference by man. These parts of the urban eco-system differ somewhat from the rural eco-system and can be not only lovely but instructive as examples of a viable way to use landscaping in cities and as examples of a special kind of natural eco-system.

The Commission's vision of the Canal Park as a connector has particular importance in urban areas. The Canal Park acts as both a tangible boundary to neighborhoods, giving a greater sense of definition to them, and as a means of connecting neighborhoods by giving them the common quality of bordering the Canal Park. The most important thing that will have to be done to promote the role of the Canal Park as a connector is to develop pedestrian access along it. This is not really much different from what is to be done in other environments, but the urban environment will make it essential that the trail is done with very careful attention to detail. Strong design elements will be needed in order to provide a sense of continuity in an environment already bursting with conflicting design elements. This means that the treatment of the water's edge, the path itself, benches, lighting, signs, and other items will have to be done with greater care for continuity and for a higher degree of a finished look than would be required in a rural area where nature more gracefully masks man's design mistakes.

The other aspects of the Commission's vision of the Canal Park—recreation, historic enhancement, water resource, and conservation—are not really separate from urban enhancement. Those other goals will just have to be dealt with in a very different way in the city.

Conservation Goals

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 eco-systems 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 a railroad bed. By setting such a board 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.

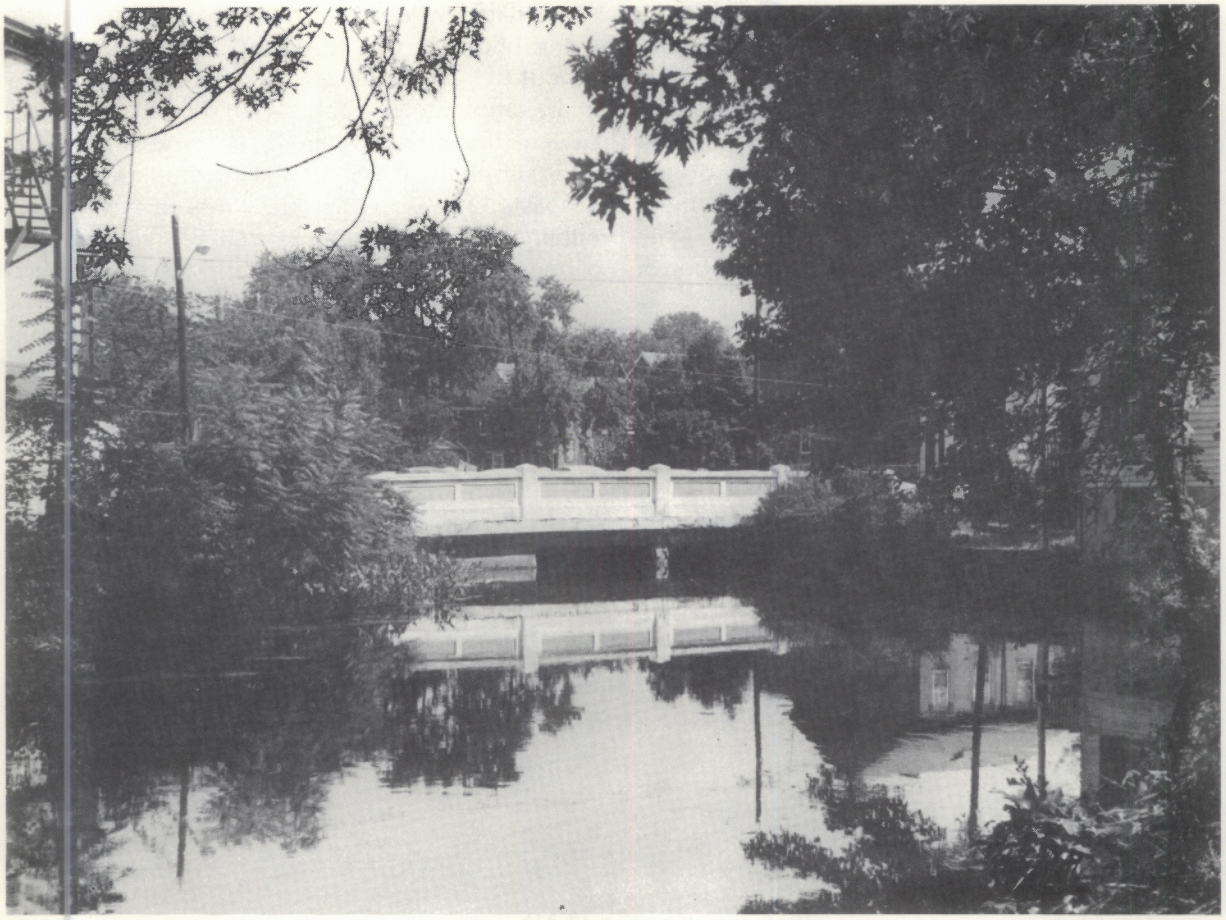
There is another important conservation role for a linear park. As development spreads through Central New Jersey it usually leaves islands of natural areas in its wake. Development does not systematically replace all of the natural vegetation in a region but it encircles and shrinks these natural areas. The result is that it is harder for organisms—both animal and plant—to migrate. In animal population 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 act as a corridor for the migration and for the establishment of a wide 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.

The Commission would also like to explicitly state that it will work to conserve valuable specimens or small eco-systems in the Canal Park.

Applicability of Goals to Environmental Types

Having described the environment types that constitute the Canal Park and set forth the Commission's goals for the park's future, it is essential to show how the goals relate to the environments.

The general goals for the park—restoration and enhancement of the park's role as a connector, development spread throughout the entire park and at low intensity for any one spot, and involve-



The Hanover Street Bridge in downtown Trenton is in a surprisingly bucolic setting.

ment of the park's communities—underlie all development plans and are, therefore, applicable to all of the park.

Three of the more specific goals also apply to all sections of the Canal Park. The use of the canal as a source of raw water applies to all environmental types. Whatever is done to the park in any environment, consideration must be given to the need to preserve or enhance the quality of the canal water and the security of the canal as a structure to carry water. The historic site goals also apply to all sections of the Canal Park. The entire canal is a registered historic site and development of the park must always take cognizance of the impact of that development to the historic qualities of the canal. The importance of this goal increases in those areas where there are historic structures or historic districts in or adjacent to the park, but there cannot be any section of the park in which historic qualities are ignored. The goal for the use of the park as a means of conserving natural resources also applies in all environmental types. This goal has its strongest application in the natural environments, where the wilderness quality of the park will be preserved, but the Commission also understands the need to conserve valuable natural resources in the urban environments—or wherever they may be found.

The urban enhancement goals are obviously restricted in their applicability to the urban environments of the Canal Park.

The recreation goals will have dramatic differences based upon the different qualities of the park's environments. There are two important points to consider in trying to match environmental types with recreational development. First, the Canal Park Law of 1974 specifically instructs the Commis-

sion to leave some portions of the Canal Park as "designated wilderness areas to be kept as undeveloped, limited-access areas restricted to canoeing and hiking." (C13:13A-13b) Creating a "wilderness area" in a linear park is not an easy thing to do, but the Commission was delighted to discover that there already exist three sections of the park that are dominated by natural conditions. (These are the natural environments described in Chapter 2.) Recreational development for these three areas, therefore, will be minimal. The other important point is simply that recreational development should be complementary to the type of environment that exists. The Commission wants to develop the Canal Park's present potential rather than spend millions of dollars trying to change that potential.

The following table indicates the relationship between environmental type and the suitability of recreational development in the Canal Park. The purpose of this table is to show the kinds of recreational development that are planned for the park; it does not indicate how the park can be used. Cycling, for example, is shown to be unsuitable for natural environments. This does not mean that it is forbidden there; it means that the Commission does not expect to develop the kind of smooth, paved towpath in natural areas that makes cycling easy. A distinction is also made between suitable and prime uses. The prime uses indicate a higher priority for development.

SUITABILITY OF TYPES OF RECREATIONAL DEVELOPMENT TO THE CANAL PARK

Use	Urban	Suburban	Transportation	Rural	Natural
Boating	—*	x	xx	xx	xx
Fishing	x	x	xx	xx	x
Swimming	—	—	—	x	xx
Jogging	x	xx	—	x	x
Walking	xx	x	—	x	xx
Cycling	xx	xx	—	x	—
Horseback Riding +	—	x	—	xx	x
Picnicking	x	—	—	xx	xx
Nature Study	x	—	—	x	xx
Camping	—	—	—	xx	x
Historical Preservation	xx	xx	x	x	—

x = suitable xx = prime — = unsuitable

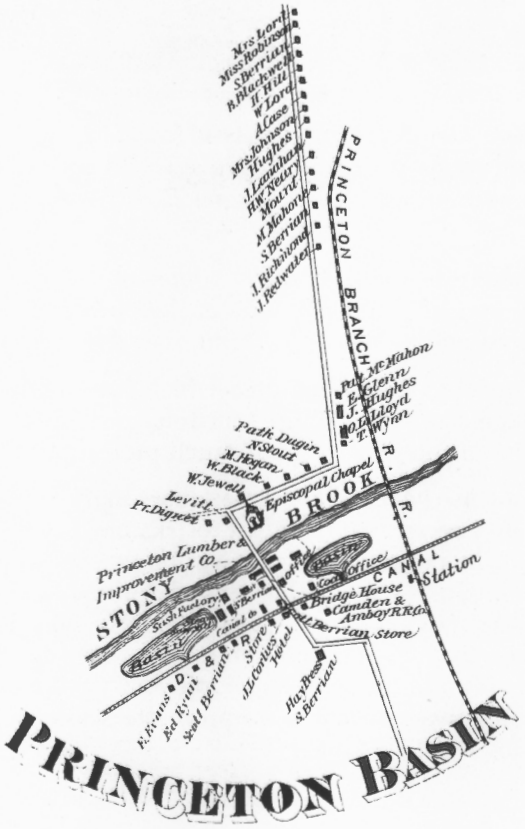
*Boating within urban areas is made almost impossible by frequent low bridges but the Commission would like to see boating facilities on the edges of urban environments so that city dwellers can have easy access to boating on the canal.

+ Horsback riding is a desirable recreational use of the Canal Park but it is usually incompatible with some other uses unless a separate trail is provided for horses. Where this use is indicated as suitable or prime, therefore, it assumes the use of a special trail.

Further, the Commission realizes that other constraints may make actual development of recreational facilities impractical, despite a favorable relationship between environmental type and use. Soil conditions, vegetation patterns, hydrologic concerns, and other issues dealt with in this chapter will all be considered before specific plans are made.

The areas that have been designated as special nodes were done so because they possessed special qualities which will require special consideration for development. The general goals for the park, as well as the specific goals of water use, historic preservation, and conservation, will apply to the special nodes just as they do to the other environmental types but the emphasis for development will be specific for each node. The general guidelines for each node are as follows:

1. *Smith's Mill, Stockton:* This is an important and attractive collection of historic buildings connected with a milling operation. These buildings should be enhanced for their historic qualities. The area should also be used as an access point for recreational use of the canal and towpath.
2. *Port Mercer, Lawrence, West Windsor, and Princeton Township:* This is a small community whose history is directly related to the canal's history. The historic qualities of this community appear to be threatened as a result of pressure from two nearby commercial centers and the presence of surrounding developable land. Development could be guided in such a way that it adds to the attractive qualities of a canal community, but it must also recognize that this node provides access to one of the park's most natural environments.
3. *Princeton Basin, Princeton Township and West Windsor.* Historic preservation and recreational access can both be encouraged to concentrate on this spot. Princeton is planning both kinds of activities for land they own in this node.



The Princeton Basin area, once a busy commercial spot, may soon become a busy focus for picnics and boating. *Photo, Historical Society of Princeton*



The tollbooth and bridgetender's house in Griggstown have been restored to their 19th century condition.

4. *Millstone Aqueduct, Plainsboro:* Development plans call for a large scale "planned unit development" near this spot. Recreational access should be improved with special consideration for the aesthetic pleasures from seeing a spot where the Millstone River, the canal, and Lake Carnegie come together.

5. *Griggstown Causeway, Franklin and Montgomery Townships:* At the causeway there is a combination of historic sites, recreational use, and access to one of the park's three natural areas. Each of these amenities must be protected and enhanced without disturbing the others.

6. *Ten Mile Lock, Franklin Township:* This is an area which has potential for major recreational use around the lock area and the confluence of the Millstone and Raritan Rivers. It could also serve as an access point in a section of the park without much present access.

A special comment should also be made about park uses in the transportation environments. This environmental type was created because of the great restrictions placed upon use of the park when it is such a very narrow corridor. In a transportation environment the emphasis for recreational use will be especially limited to linear pursuits—use of the towpath for hiking, jogging, or cycling, and boating on the canal are the most appropriate park uses for this kind of environment. The Commission would also like to point out, however, that this would seem to be an appropriate place to consider means of enhancing the aesthetic enjoyment of the park by people driving along it on the highway that serves as a border. As long as the highway retains an appropriate scale as the park's neighbor, its users should be encouraged to enjoy the Canal Park.

SECTION II

Administration of the Canal Park



CHAPTER 4: 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 Canal Commission was created to accomplish three 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 Commission's goal in carrying out this task is not only to protect and enhance the park, but to make sure that there is coordination among the actions of the many agencies whose decisions impact on the Canal Park.

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.) This document was prepared in order to fulfill this second task.

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 Commission's Work Plan

The points raised in the following list indicate the tasks that the Commission expects to undertake and the order in which they will be addressed.

- The Commission and the Department of Environmental Protection have established a regular system for reviewing actions by State and other governmental agencies within the Canal Park.
- The Commission is proceeding to adopt a master plan for the Canal Park which will provide a framework to guide future development plans and will provide a data base for the review zone.

- After adoption of the master plan, the Commission will work toward development of the review zone. The Commission may select two areas as pilot projects for the review zone. These pilot projects would be administered before the entire review zone is put into operation. The two pilot project sites would be from Province Line Road in Lawrence Township to the crossing of the Penn Central tracks in Princeton Township, and from Five Mile Lock in Franklin Township to Landing Lane Bridge in New Brunswick.

If pilot projects are adopted before the full review zone, the Commission will use the pilot projects as a means of eliminating problems from the administrative system. Changes that are suggested by the pilot projects work will be made, then the Commission will establish a review zone for the entire Canal Park. The speed with which the full review zone can be established will depend upon the amount of money available to the Commission.

- A procedural guide explaining how to receive a permit for a project in the review zone will be published at the time that the land use rules and regulations are published.
- The Commission will prepare a master plan which will serve as a detailed guide to the development of the Canal Park, or critical parts of the park. This document will be based on the framework established in the original master plan. The timing for this work will be based on the amount of money available to the Commission.

Issues Facing the Commission

One of the purposes of this master plan is to define the issues facing the Canal Commission and to explain, wherever possible, the Commission's position on those issues. Most of the difficult issues relating to the use and development of the park are addressed in Section I of this plan. Section I discusses the special qualities possessed by a linear park and how those qualities relate to park uses. It also discusses park uses that are uniquely related to the Canal Park and how those uses fit into the wide variety of environments that constitute the Canal Park. There are, however, a few issues that did not emerge from the examination of the "Visions of the Canal Park." Perhaps the most difficult to resolve and the most omnipresent is the apparent conflict between protection of the park's natural qualities and development of the canal and park for use as a water supply.

All of the canal except that portion of the main canal between Trenton and Bordentown must be maintained as a water conduit. In order to accomplish this maintenance, most of the length of the towpath must be wide enough and sturdy enough for use by heavy equipment needed to make repairs. There have been times, however, when parts of the towpath have been left unattended and have begun to take on the charms of a fragile trail through a wilderness area. The desire to preserve this kind of trail is usually in direct conflict with the need to have access to the canal for maintenance. The Canal Commission recognizes the need for preserving those sections of the towpath that have subtle natural beauty. The Commission also recognizes the need to maintain the integrity of the canal as a water conduit.

The Commission hopes to be able to minimize the ways in which these needs conflict by finding ways in which aesthetic beauties and practical maintenance can both be furthered. Basic to this effort is an understanding that one of the greatest assets of the Canal Park is the special quality that the canal has as a man-made waterway. The evidence of man's craft adds to the natural beauty that envelops the canal. It is the Commission's belief that when the towpath must be prepared for heavy equipment it can be done in a way that supplements the natural beauty of the area—that the towpath can go along with the canal as an example of man-made beauty in the Canal Park. This will, at times, necessitate the removal of some regulation that has indiscriminately grown along the canal's banks. There are places, however, where maintenance access to the canal is available from a bordering road, or some other means, and in these cases the towpath can be allowed to take on more natural qualities.

Another issue of importance is the need to protect the privacy of neighboring property while developing the park for use by a large number of people. The Canal Park is so narrow in most places that it is impossible to set up a buffer zone of unused land between the park facilities and neighboring property. Most of the park is free from this problem because the park is usually separated from private property by a road or a river. The Commission also expects to alleviate this problem by developing the Canal Park in such a way that uses are appropriate for environments. In those cases where this problem persists, however, the Commission hopes that either vegetation screens or fences will be erected in order to assure the privacy of the park's neighbors.

The relationship between the Canal Park and the master plans and zoning plans of adjoining municipalities is also an important issue for the Commission. In order to be sensitive to community plans, the Commission's staff has visited the planning boards of the park's neighboring communities, acquired copies of their zoning and master plan maps, and involved those municipalities in the process of planning for the park.

There is a large number of issues which the Commission must face and resolve dealing with the Canal Park's review zone. These issues relate to the master plan because they will help determine a system of protection for the park described in the master plan. There is, however, an important distinction between the master plan and the review zone, since the master plan deals with land owned by the State of New Jersey, while the review zone will deal chiefly with privately owned lands. The Canal Commission is presently concentrating on the master plan and will not try to address review zone issues until a more appropriate time.

CHAPTER 5: THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

The statute which established the Canal Commission 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 Delaware and Raritan Canal State Park Law of 1974 assures a close relationship between the Commission and the Department because it specifically states that the Canal Park shall "... be maintained and operated under the jurisdiction of the Department of Environmental Protection, which shall have the power, with the approval of the ... Canal Commission ... to take measures as may be necessary to preserve, maintain, improve, and enlarge the park, ..." (c. 13:13A-2b.)

The Department has divided primary responsibility for the Canal Park between the Bureau of Water Facility Operations and the Division of Parks and Forestry. The Bureau of Water Facility Operations, in the Division of Water Resources, had sole responsibility for the Canal for almost forty years. It has been their duty to renovate the abandoned canal and to maintain and to operate it as a water resource. They will continue to carry this responsibility.

The maintenance of the canal as a waterway involves a 24 hour per day, 7 day per week responsibility requiring constant monitoring of water levels and weather conditions. The sluice gates that have replaced the locks and the several flood gates along the canal must be adjusted during times of heavy rainfall, day or night. The towpath must be patrolled regularly in order to inspect the canal's banks, the flood guard enbankments, and the culverts and bridges that cross under and over the canal. The locktender's house in Griggstown is the home of the Flow-Control Supervisor, the 10 Mile lock house is used by the Eastern Section Flow Controlman, and the Lambertville lock house is the house of the Western Section Flow Controlman. A part-time employee lives in the Kingston lock house where he can record information from the U.S. Geological Service gauge located there.

There are, of course, many other Bureau of Water Facility Operations employees connected with the canal. Engineers, administrators, and laborers are all part of the team that makes sure the canal keeps supplying water to Central New Jersey.

The Division of Parks and Forestry also has an important responsibility for the Canal Park because, like all State parks, they are responsible for developing and maintaining the Canal Park as a park. A Park Ranger has been appointed to supervise park use and he and his staff have been installed at Bulls Island. Plans call for the development of another park office near Blackwell's Mills, adjacent to the Six Mile Run Reservoir. From these two locations the Canal Park can be supervised and maintained.

There are a number of other agencies in the Department of Environmental Protection whose decisions relate to the Canal Park. The Commission has been working closely with the Green Acres and Recreation Program. Their knowledge of recreational needs and supplies for the entire State is of crucial importance in developing the Canal Park. The Office of Environmental and Historic Review is important to the Canal Park because they are expert at analyzing the environmental impact of proposed projects. This talent has already helped the Commission understand the implications of several projects brought up for review. In the Division of Water Resources the Pollution Control, Monitoring Surveillance, and Enforcement Element has been helpful in dealing with several pollution problems in the Canal Park. The Flood Plains Management and Stream Encroachment agencies have also been helpful to the interests of the Canal Park. At the present time the Commission is working closely with

the Division of Water Resources in developing a program for analysis of pollution problems in the canal under the Federal Areawide Water Quality Management Plan (208).

The Commission has found that it can work effectively within the Department of Environmental Protection, going to the appropriate agency for any kind of help when it is necessary.

SECTION III

Resource Inventory of the Canal Park



CHAPTER 6: WATER

A vast amount of information is needed for the Commission's work toward achieving its goals relating to water. The Commission will need to have information about the number and size of all the waterways that impact on the Canal Park. The present levels of pollution and over-all health of those streams will be of vital concern. The uses to which the canal's water is put are important. The Commission will also need to know the programs presently in operation that regulate these waterways and how those programs relate to the Commission's goals.

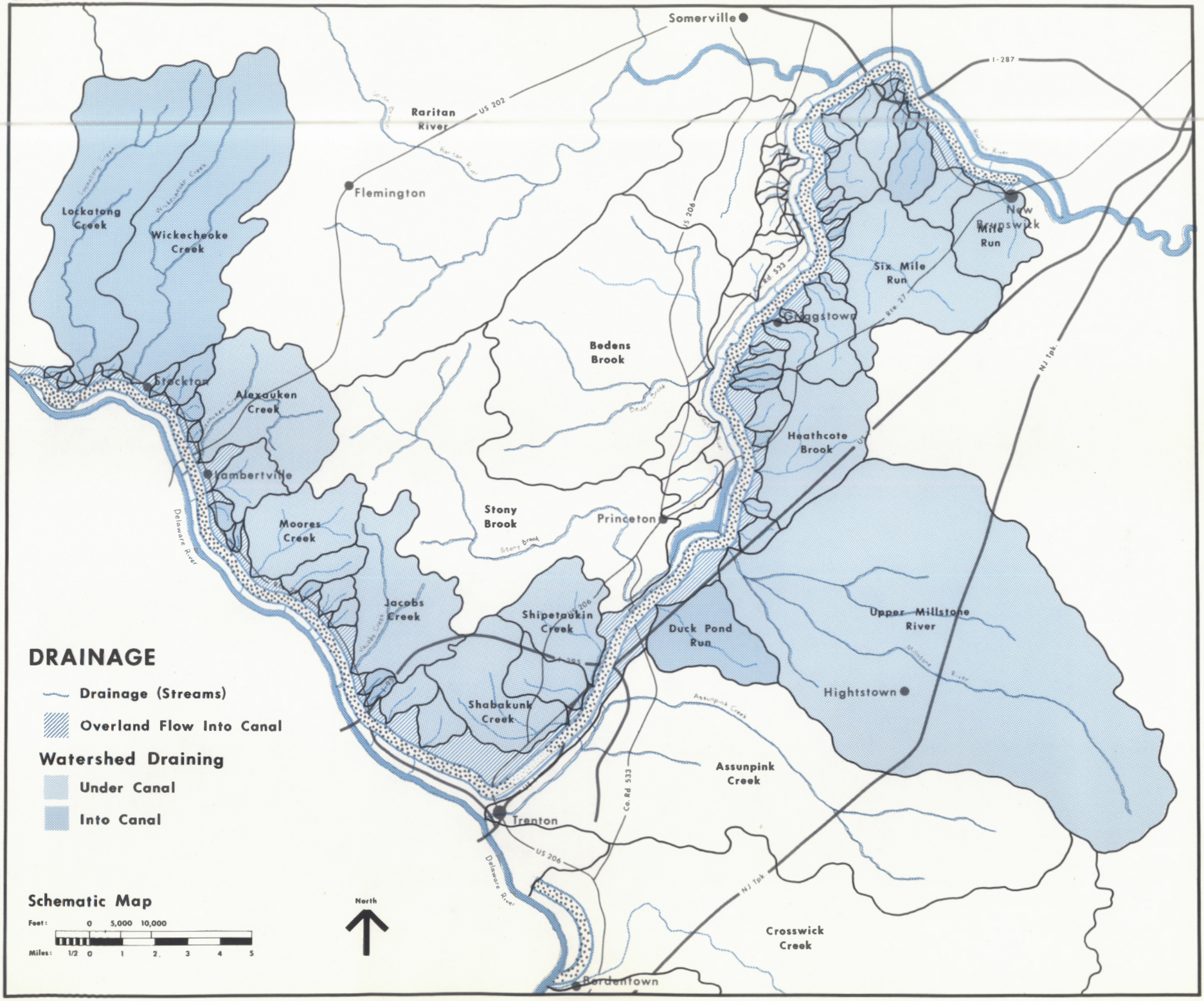
The map entitled DRAINAGE shows and classifies the watersheds of all of the streams that enter the Canal Park. The table which follows, entitled WATERSHEDS OF THE CANAL, was prepared by the Bureau of Water Facility Operations and lists only those streams which are tributary to the canal or pass under it. The Assunpink, the Lower Millstone (below Lake Carnegie) with its tributaries, the Stony Brook, and Bedens Brook are all major streams in the Canal Park that are not included in this table.

WATERSHEDS OF THE CANAL

Delaware River Basin Watershed Areas
Along the Delaware and Raritan Canal

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	
-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	0.396	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.	

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
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.
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. (Fiddler 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.


Somerville
I-287
Raritan River
US 202
Flemington
US 206
Lockatong Creek
Wickecheoke Creek
New Brunswick
Six Mile Run
Rd 533
Rte 27
Kingstown
Bedens Brook
NJ Tpk
Stockton
Alexauken Creek
Heathcote Brook
Lambertville
Stony Brook
Princeton
Moores Creek
Delaware River
Jacobs Creek
Shipetaukin Creek
Duck Pond Run
Upper Millstone River
Hightstown
Shabakunk Creek
Assunpink Creek
Assunpink Creek
Co. Rd 533
Trenton
US 206
Delaware River
NJ Tpk
Crosswick Creek
Bordentown
DRAINAGE
Drainage (Streams)
Overland Flow Into Canal
Watershed Draining
Under Canal
Into Canal
Schematic Map
Feet: 0 5,000 10,000
Miles: 1/2 0 1 2 3 4 5
North

Watershed Areas
1. **Streams under Canal**
2. **Streams Tributary to Canal**
3. **Local Drainage and Overland Flow Tributary to Canal**

Location (Mileage)	Watershed Area (Sq. Miles)		
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)
28.93	5.742	2.	(Duck Pond Run Creek)
28.93-30.94	0.506	3.	
30.94-31.81	0.473	3.	
31.81-32.75	0.376	3.	
32.75	98.655	1.	(Millstone River Kingston Aqueduct)
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)

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	
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.	
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

Total Watershed Areas — Delaware Basin

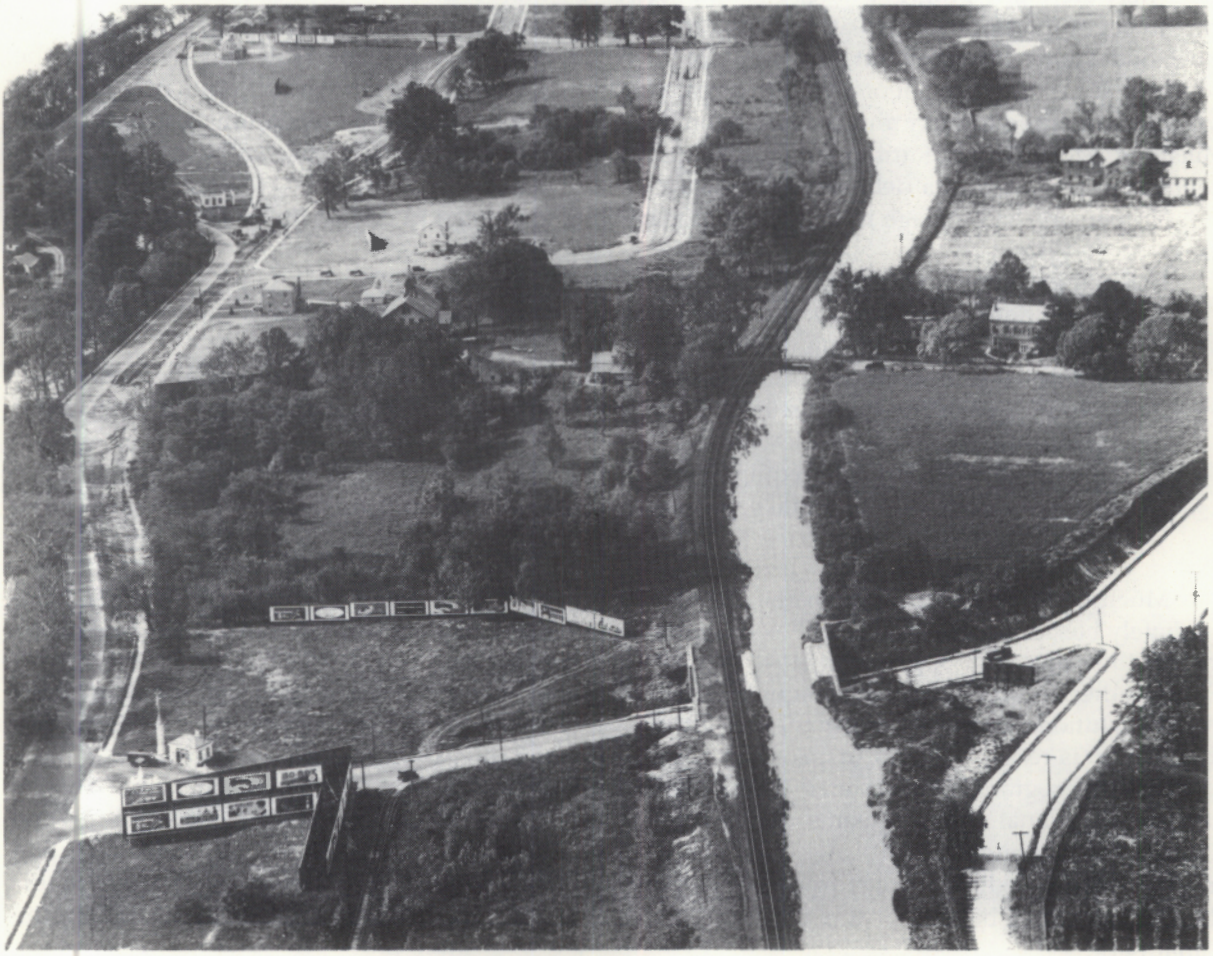
1.	Streams under Canal	= 72.477 Sq. Miles
2&3.	Tributary to Canal	= 64.256 Sq. Miles
	Combined Total Areas	= 136.733 Sq. Miles

There are 71 watershed areas in the Delaware River Basin of which 13 are watershed areas with stream flows under the Canal, 15 are watershed areas with stream flows tributary to the Canal at a specific point, and 43 are watershed areas with local drainage and overland flow tributary to the Canal.

In the Raritan River Basin there are 63 watershed areas of which 21 are stream flows under the Canal, 9 are stream flows tributary to the Canal at a specific point, and 33 are areas with local drainage and overland flow tributary to the Canal.

Overall there are 134 watershed areas in the combined River Basins along the Delaware and Raritan Canal.

NOTE: U.S.G.S. Topography maps do not identify all streams by name in watershed areas 1 and 2.



Sullivan Way, in Trenton, is shown going under the canal in this picture from about 1925. *Photo, William J. McKelvey, Jr.*

The Commission and the Division of Water Resources are presently producing a plan for the analysis of the quality of the water in the canal. This plan is part of the State's action in response to the Federal Water Pollution Control Act Amendment of 1972, which provides for the development and implementation of area-wide waste treatment management plans. Section 208 of this act provides for funding for regional studies of water quality and for the production of recommended management programs based on these studies. The goal of the 208 program is to make all streams in America swimmable and fishable by 1983. Studies under this program are well underway for Middlesex County and Franklin Township and in Mercer County; they are beginning in Hunterdon County.

Since the canal goes through each of these 208 study areas and since the programs that have begun largely ignore the canal, the State Department of Environmental Protection decided to make a special 208 study of the canal. The special canal study will utilize information from the existing 208 programs whenever it is appropriate, but it will focus on the canal as a waterway. The canal study, and the Commission will also benefit from a thorough hydrologic and hydraulic study of the canal which will be done for the Bureau of Water Facility Operations.

The water from the Delaware and Raritan Canal is an important resource to Central New Jersey. At the present time there are contracts for the sale of 74.9 million gallons of canal water per day. The Bureau of Water Facility Operations divides these sales into four categories: potable, industrial, irrigation, and fire standby. The table entitled "DELAWARE AND RARITAN CANAL CONTRACTS" shows the status of water sales.

There are many programs already administered by the Division of Water Resources that control the impact of development on water. The most important of these for the Commission's purposes is the Flood Plains Management Program. (N.J.S.A. 58:16A-1 et seq.) The State has delineated the floodway ("... the channel of a natural stream and portions of the flood plain adjoining the channel which are required to carry and discharge the flood water or flood flow of any natural stream.") of the Millstone, Stony Brook, Raritan, and Delaware Rivers and it exercises land-use authority within that delineated area. Within a delineated floodway:

No person shall engage in or cause other persons to engage in any of the following prohibited uses;

1. Placing, depositing, or dumping any solid waste;
2. The erection of structures for occupancy at any time by humans or livestock, and the erection of kennels for the boarding of domestic pets;
3. The discharge (except as authorized under other provisions of law), processing, storage or disposal of pesticides, domestic or industrial wastes, radioactive materials, petroleum products or other hazardous materials;
4. The storage of materials or equipment;
5. The construction of individual septic systems for residential, commercial, or industrial buildings.

Much of the Canal Park is in the floodway of one of these rivers as is much of the land immediately bordering the park. The Flood Plains Management Program will, therefore, often be working for the same kind of goals as those held by the Commission.

Another section of the Division of Water Resources whose actions relate to the Canal Park is the Water Pollution Control, Monitoring, Surveillance, and Enforcement Element. As their title indicates, this section is responsible for inspecting streams and enforcing water pollution regulations.

A new program, administered in the Department of Agriculture, will also be of importance to keeping the Canal Park's streams pollution-free. This program was created in 1975, by the "Soil Erosion and Sediment Control Act." Its goal is to reduce loss of soil and to prevent water pollution from sediment. Sediment constitutes a large portion of the pollution in the State's waterways so it is the Commission's belief that this program can be of great importance in reducing pollution in the Canal Park.

Contract Sales
as of 11/1/75

DELAWARE AND RARITAN CANAL CONTRACTS

User	Potable	Industrial	Irrigation	Fire Standby	Total Allotment
Lambertville Quarry		0.060			0.060
Lambertville Water Company	0.200				0.200
Mercer County Park Commission			0.100		0.100
Trenton Country Club			0.133		0.133
Public Service		1.600			1.600
Thiokol Corporation				2.000	2.000
Lawrence Hose Company				0.300	0.300
Shell Chemical		1.250			1.250
TOTAL Delaware Basin	(0.200)	(2.910)	(0.233)	(2.300)	5.643 mgd (1)
Vaccaro Brothers			0.200		0.200
Mercer County Park Commission			0.135		0.135
Affiliated Medical Research				1.000	1.000
Princeton Water Company	6.000				6.000
Princeton University (Forrestal)		1.000			1.000
Princeton Nurseries		0.300			0.300
Springdale Golf			0.150		0.150
TOTAL Millstone Basin	(6.000)	(1.300)	(0.485)	(1.000)	8.785 mgd
Steve Selody			0.100		0.100
Somerset Rubber		0.050			0.050
North Brunswick	8.000				8.000
Union Carbide		3.000			3.000
Elizabethtown Water	22.500				22.500
East Brunswick	4.000				4.000
New Brunswick	10.500				10.500
Johnson & Johnson		2.326			2.326
Middlesex Water Company	10.000				10.000
TOTAL Raritan Basin	(55.000)	(5.376)	(0.100)	(0)	60.476 mgd
		Total Diverted from Delaware Basin			69.261 mgd (2)
TOTAL CONTRACTS	(61.200)	(9.586)	(0.818)	(3.300)	74.904 mgd (1+2)

Additional Water Available for Sale out of Delaware Basin

75.000	
−69.261	5.739 mgd



The Canal, near Rocky Hill.

CHAPTER 7: 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 formation 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 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 8: 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.

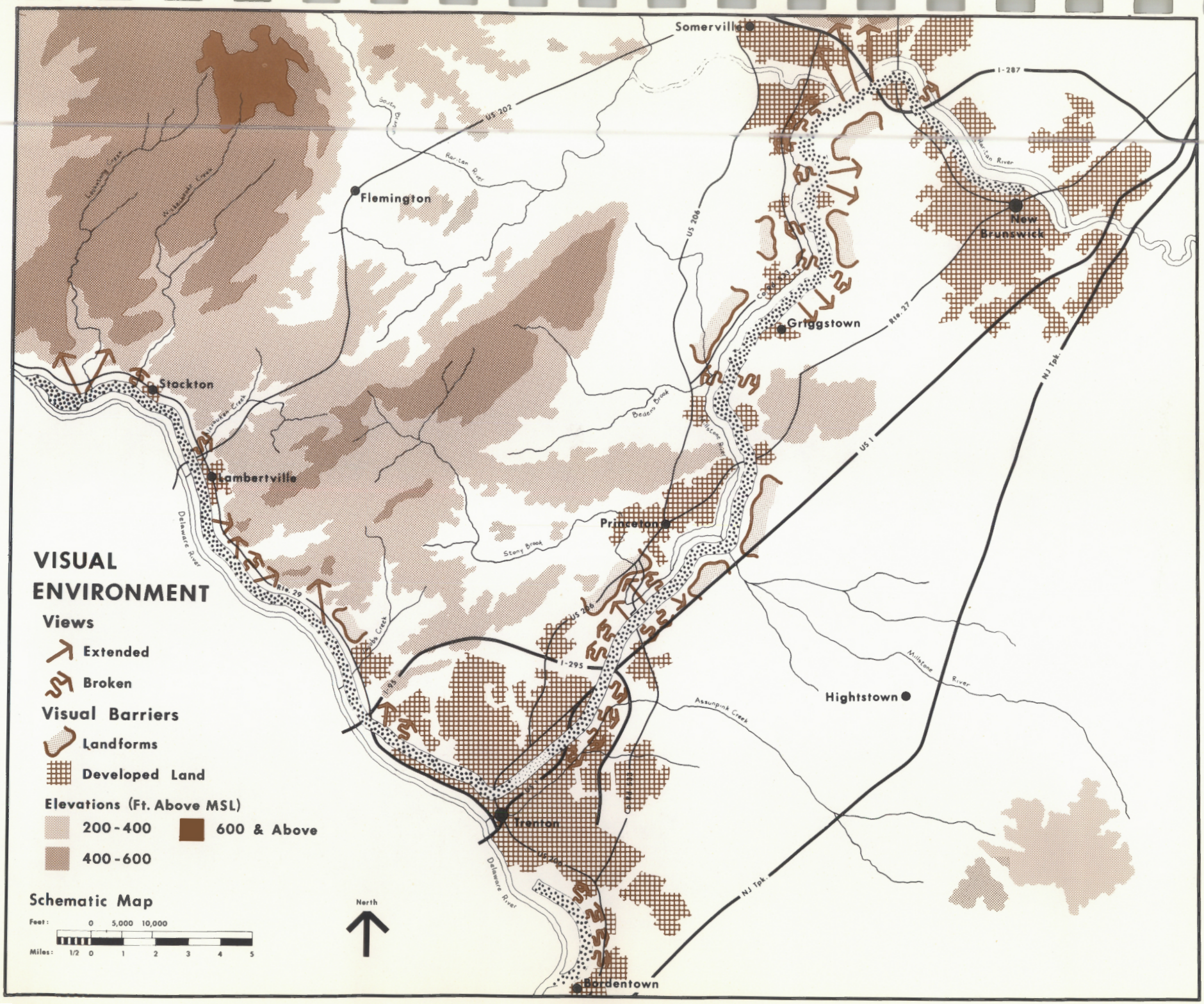
As has been stated elsewhere, most of the length of the canal is in the floodplain of an adjoining river. Further, the abandoned section of the main canal—from Bordentown to Trenton—is surrounded by a freshwater marsh. Most of the vegetation in the Canal Park, therefore, is of the floodplain or, locally, 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 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 spice bush, with witch hazel, arrowwood, viburums, and others widespread. Common herb species are sensitive fern, touch-me-not, may apple, 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.

Bulls 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 trees, 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


VISUAL ENVIRONMENT
Views
Extended
Broken
Visual Barriers
Landforms
Developed Land
Elevations (Ft. Above MSL)
200-400
400-600
600 & Above
Schematic Map
Feet: 0 5,000 10,000
Miles: 1/2 0 1 2 3 4 5
North
Somerville
Flemington
Stockton
Lambertville
Princeton
Griggstown
New Brunswick
Hightstown
Trenton
Bordentown
US 202
US 206
I-287
I-295
I-95
Rte. 27
Rte. 29
US 1
NJ Tpk.
Raritan River
Delaware River
Millstone River
Assunpink Creek
Stony Brook
Bedens Brook
Rocky Brook
Wickecheoke Creek
Lockatong Creek
South Branch



Many trees grip the canal banks, providing protection while they stand but creating havoc when they topple or die. Above, near Stockton.

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 viburum, 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 canal banks and parelleling railways and highways serve to form the margin of the flood zone by virtue of their raised nature.



CHAPTER 9: ANIMAL LIFE

An essential part of the eco-system 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 oppossums, 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 Canal 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 Shellfisheries 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 bird-watchers 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.



A family of Canadian Geese swimming near Titusville.

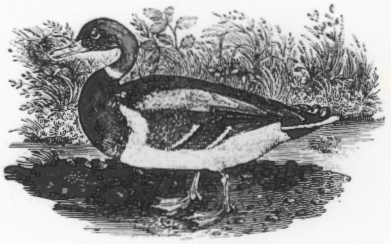
The following list is in proper ornithological order according to the American Ornithological Union.

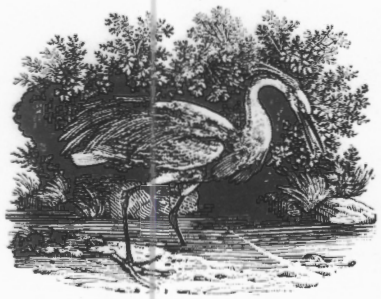
CHECK LIST OF BIRDS RECORDED IN THE REFUGE AND ALONG THE CANAL

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.

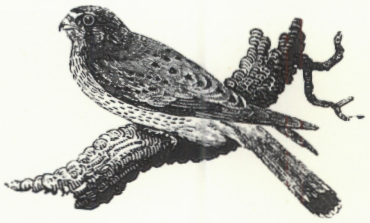
SPECIES	W	S	S	F
Common Loon*		O		O
Horned Grebe†				
Pied-billed Grebe		O		O
Great Blue Heron		U		U
Green Heron*		U	U	U
Black-crowned Night Heron		U		U
Yellow-crowned Night Heron		R		
American Bittern		O		O
Least Bittern		R		R
Canada Goose*	O	U	U	U
Snow Goose†				
Mallard*	U	C	C	C
Black Duck*	O	U	U	U
Gadwall†				
Pintail†				
Green-winged Teal†				
Blue-winged Teal*		U	U	U
American Widgeon†				
Wood Duck*	O	C	C	C
Redhead†				
Ring-necked Duck†				
Lesser Scaup†				
Common Goldeneye†				
Bufflehead†				
Hooded Merganser†				
Common Merganser†				
Turkey Vulture*	O	C	C	C
Sharp-shinned Hawk	R	O		O
Cooper's Hawk	R	O		O
Red-tailed Hawk	C	C		C
Red-shouldered Hawk	O	O		O
Broad Winged Hawk*		U	O	C
Rough-legged Hawk	R			R
Bald Eagle 1969		R		R
Harrier (Marsh Hawk)	O	O		O





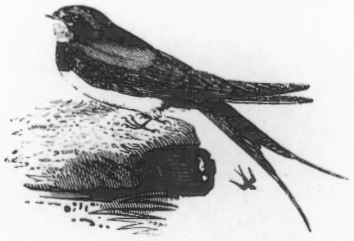


SPECIES	W	S	S	F
Osprey		O		O
Peregrine Falcon (Duck Hawk)	R			R
Merlin (Pigeon Hawk)	R			R
Kestrel (Sparrow Hawk)*	U	C	C	C
Ruffed Grouse				
Bobwhite		C		
Ring-necked Pheasant	C	C	C	C
King Rail*		O	O	O
Virginia Rail*		O	O	O
Sora*		O	O	O
Common Gallinule†				
American Coot		O		O
Killdeer*	O	U	U	U
American Golden Plover†				
American Woodcock*		C	U	U
Common Snipe	O	U		U
Spotted Sandpiper		C		C
Greater Yellowlegs†				
Lesser Yellowlegs†				
Pectoral Sandpiper†				
Least Sandpiper†				
Great Blue-backed Gull†				
Herring Gull	C	C	U	C
Ring-billed Gull*	U	U	U	U
Rock Dove†				
Mourning Dove*	C	C	C	C
Yellow-billed Cuckoo*		C	C	C
Black-billed Cuckoo*		C	C	C
Barn Owl†				
Screech Owl*	O	O	O	O
Great Horned Owl*	O	O	O	O
Barred Owl*	O	O	O	O
Long-eared Owl*	U	R	R	
Saw-whet Owl	O			
Whip-poor-will		R		
Common Nighthawk*		C	C	C
Chimney Swift*		C	C	C
Ruby-throated Hummingbirg*		U	U	U
Belted Kingfisher*	O	U	U	U
Flicker*	C	C	C	C
Pileated Woodpecker†				
Red-bellied Woodpecker*	C	C	C	C
Red-headed Woodpecker*	R	O	O	O
Yellow-bellied Sapsucker	O	C		C
Hairy Woodpecker*	C	C	C	C
Downy Woodpecker*	C	C	C	C
Eastern Kingbird*		C	C	C
Great-crested Flycatcher*		C	C	C
Eastern Phoebe*		C	C	C



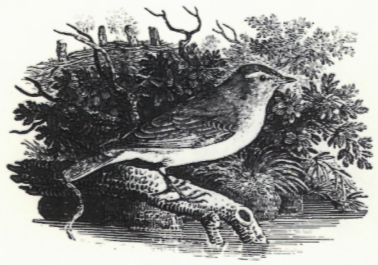


SPECIES	W	S	S	F
Yellow-bellied Flycatcher*		R	R	R
Acadian Flycatcher*		O	O	O
Traill's Flycatcher*		C	C	C
Least Flycatcher*		C	C	C
Eastern Wood Pewee*		C	C	C
Olive-sided Flycatcher		R		R
Horned Lark†				
Tree Swallow*		C	C	C
Bank Swallow		U		U
Rough-winged Swallow		C	C	C
Barn Swallow*		C	C	C
Cliff Swallow		O		O
Purple Martin*		U	U	U
Blue Jay*	C	C	C	C
Common Crow*	C	C	C	C
Fish Crow*	O	U	U	U
Black-capped Chickadee*	C	C	U	C
Carolina Chickadee*	C	C	C	C
Brown-capped Chickadee	R			
Tufted Titmouse*	C	C	C	C
White-breasted Nuthatch*	C	C	C	C
Red-breasted Nuthatch	O	U		U
Brown Creeper*	U	C	O	C
House Wren*		C	C	C
Winter Wren	U	U		U
Carolina Wren*	O	O	O	O
Long-billed Marsh Wren*		O	O	O
Mockingbird*	C	C	C	C
Catbird*	O	C	C	C
Brown Thrasher*	O	C	C	C
Robin*	U	C	C	C
Wood Thrush*		C	C	C
Hermit Thrush	O	C		C
Swainson's Thrush		C		C
Gray-cheeked Thrush		U		U
Veery*		C	C	C
Eastern Bluebird*		O	O	O
Blue-gray Gnatcatcher*		U	O	U
Golden-crowned Kinglet	C	C		C
Ruby-crowned Kinglet	U	C		C
Cedar Waxwing*	O	U	C	U
Northern Shrike†				
Starling	C	C	C	C
White-eyed Vireo*		U	U	U
Yellow-throated Vireo*		C	C	C
Solitary Vireo		U		U
Red-eyed Vireo		C		C
Philadelphia Vireo				R
Warbling Vireo*		U	U	U





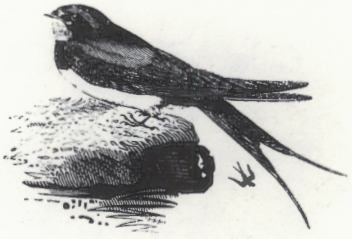




SPECIES	W	S	S	F
Brewster's Warbler (hybrid)		R		R
Black and White Warbler*		C	C	C
Prothonotary Warbler*		U	U	
Worm-eating Warbler		U		U
Golden-winged Warbler		C		U
Blue Winged Warbler*		C	C	C
Lawrence's Warbler (hybrid)		R		R
Tennessee Warbler		C		C
Orange-crowned Warbler†				
Nashville Warbler		C		C
Parule Warbler*		C	O	C
Yellow Warbler*		C	C	C
Magnolia Warbler		C		C
Cape May Warbler		U		U
Black-throated Blue Warbler		C		C
Myrtle Warbler	O	C		C
Black-throated Green Warbler		C		C
Cerulean Warbler		R		
Blackburnian Warbler		C		C
Yellow-throated Warbler		R		
Chestnut-sided Warbler*		C	U	C
Bay-breasted Warbler		U		U
Blackpoll		C		C
Pine Warbler		R		R
Prairie Warbler		U		U
Palm Warbler		C		C
Ovenbird*		C	C	C
Northern Waterthrush		C		C
Louisiana Waterthrush		R		R
Kentucky Warbler		C	C	C
Connecticut Warbler				U
Mourning Warbler		U		
Yellowthroat		C	C	C
Yellow-breasted Chat		R	R	R
Hooded Warbler		U		U
Wilson's Warbler		C		C
Canada Warbler		C		C
American Redstart		C	C	C
House Sparrow*	C	C	C	C
Bobolink		R		
Eastern Meadowlark*		O	O	U
Red-winged Blackbird*	U	C	C	C
Orchard Oriole		O		O
Baltimore Oriole*		C	C	C
Rusty Blackbird	O	U		U
Common Grackle*	U	C	C	C
Cowbird*	U	C	C	C
Scarlet Tanager*		C	C	C
Cardinal*	C	C	C	C



SPECIES	W	S	S	F
Yellow-bellied Flycatcher*		R	R	R
Acadian Flycatcher*		O	O	O
Traill's Flycatcher*		C	C	C
Least Flycatcher*		C	C	C
Eastern Wood Pewee*		C	C	C
Olive-sided Flycatcher		R		R
Horned Lark†				
Tree Swallow*		C	C	C
Bank Swallow		U		U
Rough-winged Swallow		C	C	C
Barn Swallow*		C	C	C
Cliff Swallow		O		O
Purple Martin*		U	U	U
Blue Jay*	C	C	C	C
Common Crow*	C	C	C	C
Fish Crow*	O	U	U	U
Black-capped Chickadee*	C	C	U	C
Carolina Chickadee*	C	C	C	C
Brown-capped Chickadee	R			
Tufted Titmouse*	C	C	C	C
White-breasted Nuthatch*	C	C	C	C
Red-breasted Nuthatch	O	U		U
Brown Creeper*	U	C	O	C
House Wren*		C	C	C
Winter Wren	U	U		U
Carolina Wren*	O	O	O	O
Long-billed Marsh Wren*		O	O	O
Mockingbird*	C	C	C	C
Catbird*	O	C	C	C
Brown Thrasher*	O	C	C	C
Robin*	U	C	C	C
Wood Thrush*		C	C	C
Hermit Thrush	O	C		C
Swainson's Thrush		C		C
Gray-cheeked Thrush		U		U
Veery*		C	C	C
Eastern Bluebird*		O	O	O
Blue-gray Gnatcatcher*		U	O	U
Golden-crowned Kinglet	C	C		C
Ruby-crowned Kinglet	U	C		C
Cedar Waxwing*	O	U	C	U
Northern Shrike†				
Starling	C	C	C	C
White-eyed Vireo*		U	U	U
Yellow-throated Vireo*		C	C	C
Solitary Vireo		U		U
Red-eyed Vireo		C		C
Philadelphia Vireo				R
Warbling Vireo*		U	U	U









SPECIES	W	S	S	F
Brewster's Warbler (hybrid)		R		R
Black and White Warbler*		C	C	C
Prothonotary Warbler*		U	U	
Worm-eating Warbler		U		U
Golden-winged Warbler		C		U
Blue Winged Warbler*		C	C	C
Lawrence's Warbler (hybrid)		R		R
Tennessee Warbler		C		C
Orange-crowned Warbler†				
Nashville Warbler		C		C
Parule Warbler*		C	O	C
Yellow Warbler*		C	C	C
Magnolia Warbler		C		C
Cape May Warbler		U		U
Black-throated Blue Warbler		C		C
Myrtle Warbler	O	C		C
Black-throated Green Warbler		C		C
Cerulean Warbler		R		
Blackburnian Warbler		C		C
Yellow-throated Warbler		R		
Chestnut-sided Warbler*		C	U	C
Bay-breasted Warbler		U		U
Blackpoll		C		C
Pine Warbler		R		R
Prairie Warbler		U		U
Palm Warbler		C		C
Ovenbird*		C	C	C
Northern Waterthrush		C		C
Louisiana Waterthrush		R		R
Kentucky Warbler		C	C	C
Connecticut Warbler				U
Mourning Warbler		U		
Yellowthroat		C	C	C
Yellow-breasted Chat		R	R	R
Hooded Warbler		U		U
Wilson's Warbler		C		C
Canada Warbler		C		C
American Redstart		C	C	C
House Sparrow*	C	C	C	C
Bobolink		R		
Eastern Meadowlark*		O	O	U
Red-winged Blackbird*	U	C	C	C
Orchard Oriole		O		O
Baltimore Oriole*		C	C	C
Rusty Blackbird	O	U		U
Common Grackle*	U	C	C	C
Cowbird*	U	C	C	C
Scarlet Tanager*		C	C	C
Cardinal*	C	C	C	C



SPECIES	W	S	S	F
Rose-breasted Grosbeak*		C	C	C
Indigo Bunting*		C	C	C
Evening Grosbeak	O	O		O
Purple Finch	U	C		C
House Finch	U	U		U
Pine Siskin	O	O		O
American Goldfinch*	C	C	C	C
Red Crossbill	R			
Rufous-sided Towhee*	O	C	C	C
Savannah Sparrow		O		O
Slate-colored Junco	C	C		C
Tree Sparrow	C	C		C
Chipping Sparrow*		C	C	C
Field Sparrow*	U	C	C	C
White-crowned Sparrow	O	U		U
White-throated Sparrow	C	C		C
Fox Sparrow	U	C		C
Lincoln's Sparrow		O		O
Swamp Sparrow*	U	C	C	C
Song Sparrow*	C	C	C	C
Snow Bunting	R			

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.



CHAPTER 10: POPULATION AND TRANSPORTATION

There are two demographic issues that are important to the Commission's work: the location of the Canal Park's users and the areas in which adjacent development is likely to become intensive enough to affect the character of the park. The first of these issues seems to require a decision that is almost arbitrarily reached. Despite its status as a State park, there seems little point in assuming that the entire State will be the Canal Park's service area. People from the furthest sections of the State are unlikely to use the Canal Park often enough to be included in its development plans. The same is true of a service area that would include everything within fifty miles of the park. New York City and Philadelphia, as well as the densely populated Essex, Union, and Hudson Counties, are within fifty miles of the Canal Park. The Commission does realize, however, that the Canal Park is unique in New Jersey and will, therefore, attract some people from a very long distance.

In order to have some idea of demographic influences, the Commission has decided to concentrate on thirty-six municipalities that are adjacent to the Canal Park and from which the great majority of the park users will probably be drawn. The following table gives 1975 population numbers and densities along with projected populations for 1980 and 2000 for each of these municipalities.

The table shows that the greatest numbers of people and the highest densities are around New Brunswick and Trenton. The New Brunswick area reflects the spread of New York City's urban sprawl while the area around Trenton reflects the same phenomenon for Philadelphia. As of 1975, these two sprawls have not touched: there is an opening which is along the Canal Park and encompasses West Windsor, Plainsboro, South Brunswick, Princeton, Franklin, Montgomery, and Hillsboro. It is, however, in these very municipalities that projected rates of increase in population are greatest. This means that present use of the Canal Park will probably come most heavily from the New Brunswick and Trenton areas, but eventually the Commission can expect a heavy demand throughout the length of the main canal. Population density along the feeder canal is presently, and can be expected to continue to be, light. Use in this part of the Canal Park will probably not increase as fast as in the central section of the main canal.

The other aspect of population that is important to the Commission is where intensive development will cause pressure on the Canal Park. These same thirty-six municipalities can be used to illustrate this issue. The population density is particularly important with respect to development pressure.



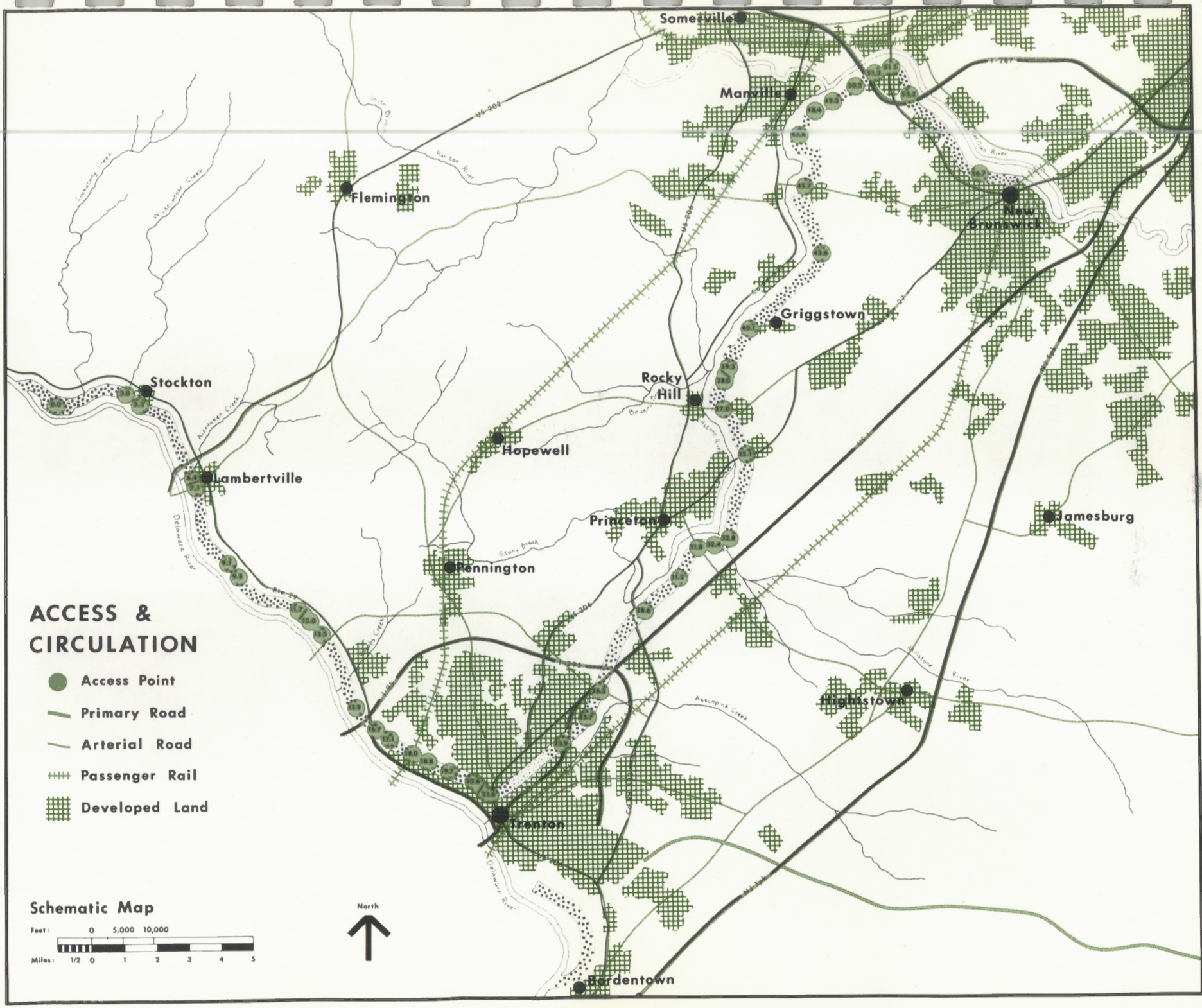
Municipality	1 1975 Population	1 1975 Density	2 1980 Projected Population	2 2000 Projected Population
Hunterdon County				
Delaware	3,435	93.1	3,900	6,100
East Amwell	2,750	97.9	3,200	5,000
Kingwood	2,425	68.1	2,700	4,300
Lambertville	4,390	3,990.9	5,640	6,000
Stockton	620	1,127.3	760	950
West Amwell	2,280	105.6	2,600	4,250
Mercer County				
Ewing	33,460	2,211.5	35,300	40,000
Hamilton	82,880	2,104.6	83,500	100,000
Hopewell Boro.	2,295	3,060.6	2,700	3,500
Hopewell Twp.	10,540	181.7	13,300	25,000
Lawrence	20,025	915.6	25,000	40,000
Pennington	2,165	2,186.9	3,500	4,500
Princeton Boro.	12,245	6,957.4	12,900	14,000
Princeton Twp.	14,065	865.5	15,000	20,000
Trenton	106,625	14,216.7	106,000	102,000
West Windsor	7,735	274.8	9,500	22,000
Burlington County				
Bordentown City	4,600	4,893.6	5,460	6,969
Bordentown Twp.	7,805	1,053.3	10,020	14,592
Somerset County				
Bound Brook	10,675	6,392.2	13,000	16,000
Bridgewater	31,350	972.7	40,000	50,000
Franklin	32,185	686.2	45,000	65,000
Hillsborough	12,265	223.8	22,000	45,000
Manville	13,495	5,398.0	15,000	17,000
Millstone	650	1,083.3	1,000	1,500
Montgomery	6,590	200.9	12,000	22,000
Raritan	6,750	3,375.0	8,000	10,000
Rocky Hill	920	1,533.3	1,500	1,500
Somerville	13,515	5,876.1	16,000	20,000
S. Bound Brook	4,840	6,914.3	6,000	7,000
Middlesex County				
Highland Park	14,815	8,230.6	15,744	16,035
Middlesex	15,570	4,513.0	15,503	17,017
New Brunswick	42,785	7,779.1	43,623	45,468
North Brunswick	17,860	1,488.3	24,490	35,234
Piscataway	39,800	2,105.8	43,028	60,494
Plainsboro	2,005	169.9	7,015	21,493
South Brunswick	15,300	373.2	20,085	40,076

1 = 1975 population estimates and density based on information prepared by the New Jersey Department of Community Affairs.

2 = Projected population figures based on information obtained from the planning boards of each county.



The following map entitled "ACCESS AND CIRCULATION", shows population sites, road and railroad systems, and access points to the Canal Park. The Commission has also prepared a description of each access point which follows the map.


ACCESS & CIRCULATION
Access Point
Primary Road
Arterial Road
Passenger Rail
Developed Land
Schematic Map
Feet: 0 5,000 10,000
Miles: 1/2 0 1 2 3 4 5
North
Somerville
Manville
Flemington
New Brunswick
Griggstown
Rocky Hill
Stockton
Hopewell
Lambertville
Princeton
Jamesburg
Pennington
Hightstown
Trenton
Bordentown
Delaware River
Raritan River
Millstone River
Assunpink Creek
Stony Brook
US 202
US 206
I-287
I-95
I-295
Rte 29

Access

The Commission defines an access point as a place at which a park user can expect to be able to reach the towpath or to put a boat in the canal while leaving his car in a reasonable spot. (The Commission assumes that people who use boats will use automobiles to bring them to the Canal Park. Canoe rental agencies are indicated in Chapter 2.) The following list shows where those points presently exist.

0.0 *Bulls Island:* There is easy access from several places in Bulls Island. The best is on the north side of the canal, just downstream from the control dam. There is parking here for about 12 cars, close enough to the canal for easy boat launching.

3.0 *Smith's Mill:* There are no officially designated parking areas around the mill but there is room for at least 20 cars.

3.3 *Bridge Street, Stockton:* The bridge over the canal allows access to either side of the canal either for hiking or boating. Parking is available along the side of the street.

6.4/ *Lambertville:* Route 29 from Stockton to Route 202 is very close to the canal and there are two places where small wooden bridges cross the canal, but the bridges are evidently for farm use because they lead into fields. The next real access is in Lambertville itself. North of Lambertville's Bridge Street there are seven roads that come down and dead-end at the canal. There is also one bridge over the canal before Bridge Street. Along Bridge Street there is public parking. Access is also possible at the lock at the south side of Lambertville.

9.1 *Mercer County Work Farm:* Opposite the entrance to the Mercer County Work Farm there is a small, unmarked road which leads down to the canal, crosses it, and branches to the Delaware in two or three places. Before this road crosses the canal an unimproved branch comes off and runs adjacent to the east side of the canal for a few hundred feet before it comes back to Route 29 at a spot used for dumping. No real parking spaces are available and the road is dangerous to re-enter Route 29, but this is an access point and might be easily improved.
Route 29, but this is an access point and might be easily improved.

9.8 *Pleasant Valley Road:* Opposite the spot where Pleasant Valley Road joins Route 29 there is a stretch of about 500 feet that is gravel road with parking and picnicking spots.

11.7/ *Titusville:* There are three road crossings in Titusville before Washington Crossing State Park.
13.0 Each of these provides some access to the canal. Parking is limited to what is available along the side of the roads.

13.5 *Washington Crossing State Park:* The park, of course, provides excellent access to the canal—plenty of parking; foot traffic and boat access are excellent.

15.9 *Bernard Road:* Although Route 29 is close to the canal all the way from Washington Crossing to Bernard Road (which is just north of the I-95 crossing), there are no roads crossing the canal and no parking or other kind of access. There is no trail here except the railroad tracks. At Bernard Road there is excellent access to the Delaware River just beyond the canal access.

16.7 *Upper Ferry Road, 17.7 Wilburtha Road, 18.0 Lower Ferry Road:* Each of these spots provides access to the canal with limited parking along the side of the road.

18.8 *Mills Drive:* Mills Drive dead-ends north of the canal but access is possible and there is a foot bridge over the canal leading to School Lane Park.

19.7 *Cadwalader Park:* Because of the fencing throughout Trenton, this is the last Trenton access

except for the opportunity to fish from bridges. It is an excellent access point with plenty of parking, bicycle and pedestrian access.

20.6/21.6 *In Trenton:* The following roads cross the canal: 1)Prospect Street 2)pedestrian bridge between Prospect and Calhoun Streets 3)Calhoun Street 4)West Hanover Street 5)Passaic Street—before it crosses, Passaic runs right next to the canal for 700 feet 6)Spring and Willow intersection 7)Warren Street 8)North Broad Street 9)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.

23.0 *Mulberry Street:* There is no towpath in this section, but the abandoned railroad tracks 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 does dead-end at the canal and parking is permitted on the side of the road.

23.8 *Cherry Tree Lane:* This road also 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.

23.9 *Whitehead Road:* This is a very congested area with Whitehead Road, Route 1, and a Route 1 spur all crossing the canal in a short distance. There is no parking area for boat access and the Ewing-Lawrence sewer plant makes foot access difficult or illegal.

25.7 *Carnegie Road* and 26.3 *Lawrence Station Road:* Access at both of these crossings is good. There is limited room to park along side of both roads.

28.6 *Port Mercer:* Quaker Road and Province Line Roads come together and cross the canal as Quaker Bridge Road. Access here is rather poor, but where Quaker Road makes a 90° turn away from the canal there is a parking lot for 6-8 cars and access to the towpath on the west side of the canal or to the water for boat launching.

31.2 *Alexander Road:* At the present time parking can be found off the edges of the road for 12-20 cars, and access to the towpath or to the water is easy.

31.81 *Washington Road:* There is an unimproved, unmarked road which comes off Washington Road to the south (west side of the canal) and meanders around this slightly wooded, mostly grassy, floodplain area. There is plenty of room for cars on this land owned by Princeton University.

32.4 *Harrison Street:* Access here is not good. There is room for a few cars to pull off the street, but no real area exists for access.

32.8 *Millstone Aqueduct:* There is a small parking lot (12 cars) on the east side with access off of Academy Road. This lot provides access to the Millstone and to the canal for boat launching, but the towpath is on the west side of the canal and cannot be reached.

35.1 *Route 27 at Kingston:* This is probably the best developed access point that presently exists anywhere on the canal. There are two parking lots that could hold 30-40 cars plus several odd places for other cars. There is also good access to the Millstone River here.

37.0 *Route 518 at Rocky Hill:* On the north side of Route 518 and the west side of the canal there is a parking area for 10-12 cars that provides good access to the canal, its towpath, and to the Millstone River.

38.0/39.3 *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 is really possible or at all possible to the towpath. 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.

40.1 *Griggstown Causeway:* There is good access to both the canal and the towpath although there are no real parking lots.

43.6 *Blackwells Mills:* This spot is almost exactly like Griggstown with respect to access except it may have more room.

45.7 *East Millstone:* The access point here is part of the center of this little community and there is a small park with a parking lot for about 12 cars and a parking lot near the canal for about 6 more. Parking along the side of the street is also available for several more cars.

47.8 *Weston Causeway:* There are no official parking areas here but it should be easy to find a place to pull off near the canal. For about 1/2 mile upstream there is a road along the canal but it does not provide any real access. Colonial Park comes right down to the canal's edge, but there are no vehicle access points through the park and the towpath is on the other side of the canal.

48.4 *Zarephath:* There is a bridge across the canal and obviously some room for parking around it, but it is hard to tell how much room because the land is owned by the Pillar of Fire and used for their campus.

49.2 *Ten Mile Lock:* At the present time there is no parking around the lock, but there is room for a small lot.



The pedestrian bridge at School Lane, in Trenton.

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TRENTON, NJ 08625-0520

50.2 *Elizabethtown Water Company footbridge:* About 1 mile downstream from Zarephath bridge is a footbridge leading to a water company structure which is next to the towpath. There is room for about 2 cars to park along the road next to the bridge, but pedestrians and cyclists could use the bridge.

51.3 *South Bound Brook Lock:* There is room for parking of about 10 cars here and access to the towpath.

51.5 *South Bound Brook's Main Street Bridge:* Between the canal and the Raritan River there is a small parking area which gives access to the now-closed town dump.

53.2 *Five Mile Lock:* There is no parking space here now but there is room for a small lot.

56.7 *Landing Lane Bridge:* There is no place to park right next to the canal but access is good from Buccleuch and Johnson Parks.

CHAPTER 11: HISTORIC SITES

There is much about the Delaware and Raritan Canal that is historically significant. The canal itself, dug by hand by immigrant laborers, the stone lining and culverts, the milestones along the main canal heralding the distances to New Brunswick and Bordentown, and the buildings along the canal used by bridgetenders, locktenders, or as mule stables—all are tangible reminders of New Jersey's past. The Commission is keenly aware of the importance of preserving New Jersey's historical heritage and of the important role that the Canal Park can play in that task. The Commission is also eager to help with the job of enhancing the many historic sites that are not directly related to the canal's history but are adjacent to the Canal Park. These sites are part of the Canal Park's environment and are, therefore, of great importance to the character of the park.

The historic sites on the following list are either in the park or adjacent to it. The chief source for this list is the State Historic Preservation Plan. There are, however, a number of sites that are of interest to the Commission but that are not on the State Register. Further, some sites on the list are of such importance that they have been included even though they are not directly adjacent to the Canal Park. These three criteria—proximity to the park, importance to the Canal Park, and importance to this history of the State—were used to make the list which follows.

Brief descriptions of six historic districts that are near the park are also included. Trenton, Bordentown, the Abbott Farm District, Princeton, the Millstone River District, and New Brunswick are all rich sources of historic sites and can be easily reached from the park. There are a number of people or groups working to register other districts that adjoin the canal. Titusville is a small community along the canal in Hopewell Township which has apparently had an intimate relationship with the canal since its construction. It has many historic structures and may soon have a registered historic district. The Commission is working with the Princeton Historical Society to obtain registration for the Princeton Basin, a district that once bustled with canal activity. For several miles along Canal Road in Franklin Township there are remarkable examples of 19th century residential architecture. This area is prime to be registered as a historic district. Work is being undertaken in Montgomery Township to qualify a strip of houses similar to those in Franklin and on the opposite edge of the Canal Park. Interest is also building for the registration of a Griggstown historic district. The Commission is eager to work toward the registration of all these districts because they make such excellent neighbors for the park.

The sites are listed in the order that they appear along the canal, starting with the inlet of the feeder at Bulls Island and proceeding to Trenton; starting again at Bordentown and then following the main canal to New Brunswick.

HISTORIC SITES

I. HUNTERDON COUNTY

Delaware Township

1.0 *Saxtonville Tavern* . . . Route 29 at Raven Rock; c. 1782.
The original owner of this two and one half story stone structure was Nathanial Saxton. Located near the feeder canal, bridge and ferry crossings, the tavern was frequented over the years by boatmen and river travelers. Presently it is a private residence in good repair. Privately owned.



Stockton Borough

3.0 *Smith's Mill* . . . Route 29 on the banks of Wickecheoke Creek; c. 1877.
This building is an example of excellent quality of a 19th century grist mill operation. Much original machinery and equipment remain in good condition. Two buildings are of historic significance: the stone mill, three and one half stories tall with a frame and metal addition, and the small one and one half story stone building. State-owned.

Lambertville

5.6 *Milo Jimison Farm* . . . Route 29, north of Lambertville; c. 1711.
Possibly Hunterdon County's oldest inhabited dwelling, it was built about 1711 by either John Calow or John Wey and later owned by John Holcombe. It is a thick-walled stone structure which has been plastered over and is one and one half stories tall. The Hunterdon County Historical Society is the present owner.

6.60 *Bridgetender's House* . . . 15-17 Bridge Street; c. 1830.
This house has the original second floor windows and two arched roof dormers. It is of frame construction, two and one half stories tall with a center chimney. A store front was added in the 1870's and more recently, a wing extending to the rear was added. Owned privately, it is occupied, run as an antique shop, and in good condition.

6.61 *Lambertville House* . . . 32 Bridge Street; c. 1812.
Built by Captain John Lambert during the War of 1812 as a stage coach stop on the New York to Philadelphia route, this is Lambertville's oldest hotel. Many prominent people have stayed here, including President Andrew Johnson, General U.S. Grant, Robert Todd Lincoln, and numerous show business greats. Once used as a post office, this four storied, wood frame building has been continuously open to the public since it was built. It is privately owned and run as both a hotel and a restaurant, and is in good condition.

6.62 *Lambertville Railroad Station* . . . Bridge Street; c. 1880.
This is a two and one half story stone structure with gambrel roof in the Victorian style affectionately known as Railroad Gothic. It is presently used as a storage area for the Pennsylvania Railroad, the current owners, and is in good condition.

7.1 *Locktender's House* . . . Feeder Lock, Lambertville; c. 1830.
This house was built into the bank of the canal lock, indicating that it was probably constructed at the time of the canal itself. Of rough fieldstone, this is a two story house with walk-in basement, chimneys at each end and measures 18 x 30 feet. It is State-owned, occupied, and in fair condition.

II. MERCER COUNTY

Hopewell Township

13.5 *Washington Crossing State Park* . . . River Road.
On Christmas night, 1776, General Washington and his army crossed the Delaware River here and prepared to make their surprise attack on Trenton the next day, a battle that was to 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.

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 and operated as an antique shop. They are in excellent condition.

Ewing Township

17.1 *Bridgetender's House* . . . Wilburtha Road; c. 1830.
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, rented, and in good condition.

TRENTON

The route of the Delaware and Raritan Canal through the City of Trenton by-passes a large section that 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.

Trenton

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 it is fairly plain, it was considered a fine country house. Much of the mid-19th century landscaping remains, and the house is being renovated to become a museum for the City of Trenton.

20.6 *Bridgetender's House* ... West State Street and 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 is presently being renovated by its owner, the City of Trenton, as a demonstration project for a neighborhood improvement program.

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 the offices of the Delaware and Raritan Canal Commission. State-owned.

21.0 *Bridgetender's House* ... 233 West Hanover Street; c. 1850.
This small two story, frame house has a front porch with an open ceiling and 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 occupied, though in poor condition, and it is owned by the State.

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 1500 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 Ukranian National Home, and serves as the Ukr-Amer Cultural Center. The fourth historical 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

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.



The Bordentown Lock about the turn of the century. *Photo, Trenton Public Library*

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. 1830. Probably built at the time of the canal, this two and one half story frame house measures 17 x 30 feet with a lean-to. 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 occupied.

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 four 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.

V. MIDDLESEX COUNTY

Kingston

35.10 *Kingston Mill* . . . Route 27 at Millstone River crossing; c. 1755.
The mill is one of two remaining grist mills on the Millstone River. The bridge beside it dates from the late 1700's. The mill is privately owned and has been restored as a residence.

35.11 *Locktender's House* . . . Route 27 at canal crossing; c. 1830.
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 rents canoes and is in excellent condition. State-owned.

35.12 *Toll House* . . . Route 27 at canal crossing; c. 1850.
This wood frame structure was built in the bank of the canal next to the lock house and was used as a telegraph office as well as for toll collecting.

VI. SOMERSET COUNTY

Franklin County

37.0 *Rockingham* . . . Route 518, 1 mile east of Rocky Hill; c. 1730.
George Washington, his wife, staff, and some of 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-storied frame house that is owned by the State and used as a museum.

39.3 *Locktender's House* ... Lock 9, south of Griggstown; c. 1830.
Probably built at the time of the canal. This is a wood frame house measuring 18 x 46 feet with two end chimneys. A front porch with wooden columns and scroll brackets was added in the 1850's. It is State-owned, inhabited, and in excellent condition.

39.6 *Canal House* ... Lock 9 near Griggstown; c. 1830.
This is an one and one half story wooden frame house with two gabled-end chimneys, one of which has been recently removed. Possibly, it was an earlier house to which additions were built in later years. The house was built into a hillside for a walk-in cellar. It is presently State-owned.

40.10 *Bridgetender's House* ... Griggstown Causeway; c. 1830.
This is a two-storied fieldstone house, 17 x 30 feet, with two gable chimneys. It was probably built at the time of the canal. It is leased from the State and has been restored by the present leasee.

40.11 *Toll House* ... Griggstown Causeway; c. 1830.
This small, wood frame structure, 6 x 8 feet, once used as toll collector and telegraph house, was, for a while, the community library, perhaps the smallest in the country.



Blackwell's Mills bridgetender's house and tollhouse.

40.12 *Mule Stables* . . . Griggstown Causeway; c. 1830.
Of fieldstone construction, this building was a rest stop for both barge tenders and their mules. It has been converted into a dwelling and is privately owned.

40.6 *John Honeyman House* . . . Canal Road, north of the Causeway; c. 1700.
Known as the 'Spy House', it was the home of John Honeyman, a British soldier during the French and Indian War. Though thought to be a British sympathizer in 1776, in reality he was working as a spy for General Washington. His information regarding the Hessian encampment in Trenton is considered to be what led Washington to attack Trenton on Christmas night, 1776. Alterations over the years have changed this one story house, leaving only the pine floors and old brick chimney to speak for its pre-revolutionary origins. It is privately owned and in good condition.

43.60 *Bridgetender's House* . . . Blackwells Mills; c. 1830.
This is a two-storied masonry, stuccoed house measuring 18 x 30 feet which was probably built at the time of the canal. The Blackwell Mills Canal House Association, a citizen's group in the area, is undertaking the restoration of the house and has recently opened it as a museum.

43.61 *Toll House* . . . Blackwells Mills; c. 1830.
This small frame house served in the same capacity as the other toll houses mentioned.

45.70 *Bridgetender's House* . . . East Millstone; c. 1830.
This is a two-storied stone house, stuccoed, and measuring 18 x 30 feet. It has two chimneys and a porch which was probably added in the later 1800's. It was probably built at the time of the canal but today is unoccupied and in fair condition. State-owned.

45.71 *Franklin Inn* . . . East Millstone; c. 1730.
This Inn served stage coach and canal travelers for more than 100 years. Today it is run as an antique shop.

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, Blackwells 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 blacksmithship in the country, spanning a period of nearly 260 years. The building has been restored by the Old Millstone Forge Association.

47.80 *Bridgetender's House* . . . Weston Causeway; c. 1830.
Probably 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.

47.81 *Weston Gristmill* . . . Weston Road and Millstone River; c. 1720.
In 1777, the mill was the site of a fight between the British and the Colonial troops. It is

a three story wood frame mill which has been rebuilt twice, once in 1844, and again in 1884. It is privately owned and in fair condition.

48.4 *Bridgetender's House* . . . Zarephath; c. 1830.
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, probably built at the time of the canal, is leased from the State by the Pillar of Fire Church, and is in good condition.

49.2 *Locktender's House* . . . Ten Mile Lock, 1 mile north of Zarephath; c. 1830.
This is a two and one half story frame house which measures 16 x 48 feet. It has a lean-to, two chimneys, and a porch which was added in the mid-19th century. Probably built when the canal was constructed, it is now occupied and is in good condition. State-owned.

South Bound Brook

51.5 *Swing Bridge* . . . Bridge Street; c. 1830.
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. 1830.
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.

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 frame house is owned by the Ukranian Orthodox Church and is well maintained.

55.0 *Van Winkle House* . . . Easton Turnpike; 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 privately owned and in good condition.

VII. MIDDLESEX COUNTY

New Brunswick

56.7 *Landing Lane Bridge* . . . Bridge over canal at Landing Lane; c. 1830.
This is another of the four remaining swing bridge mechanisms along the canal.

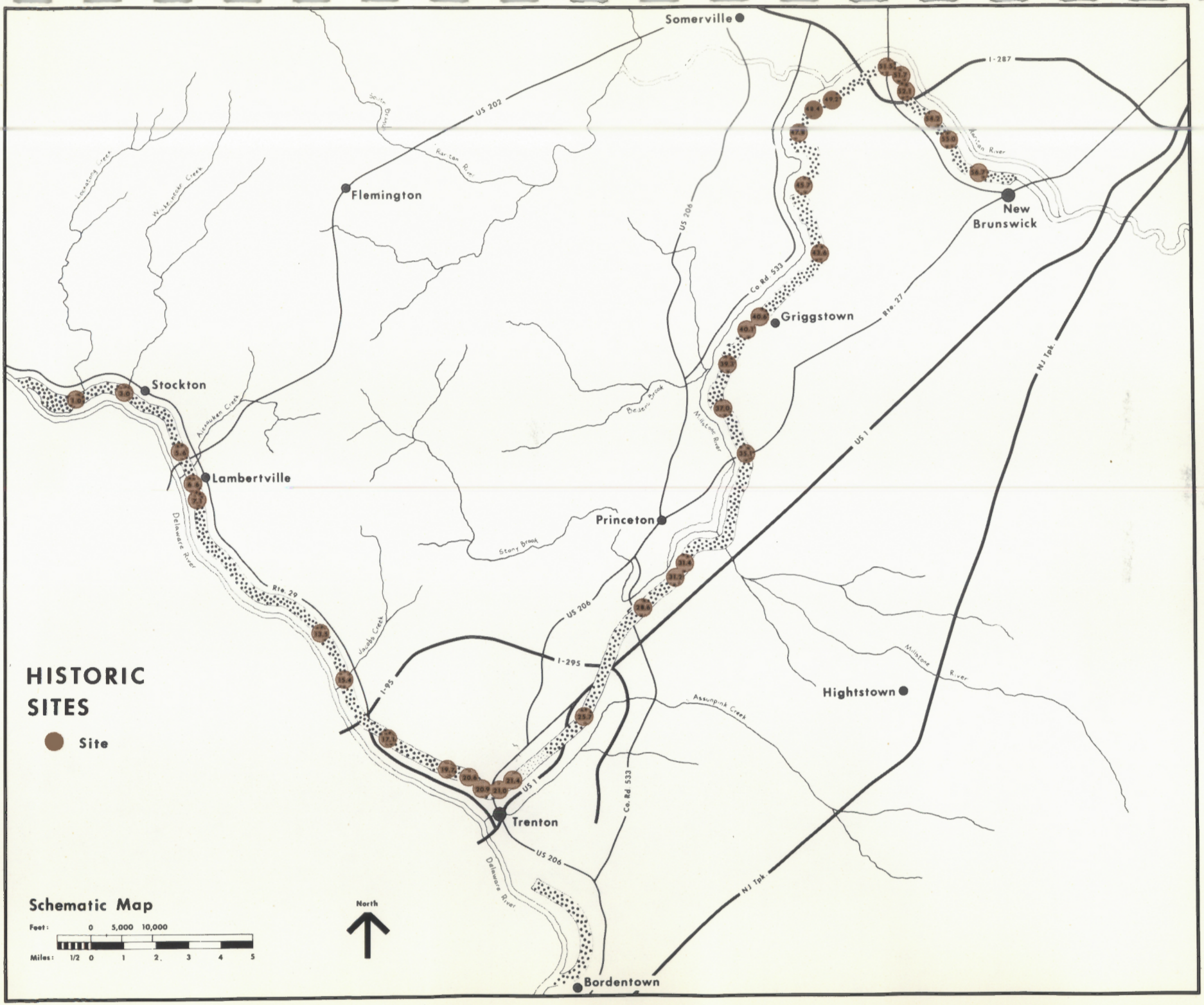
New Brunswick

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. A most unique three story, spiral staircase built without a single nail can still be seen in this building which is the oldest tavern in New Jersey. 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.



Bridgetender's house and tollhouse at Carnegie Road, Lawrence Township.


HISTORIC SITES
Site
Schematic Map
Feet: 0 5,000 10,000
Miles: 1/2 0 1 2 3 4 5
North
Somerville
Flemington
Stockton
Lambertville
Princeton
Griggstown
New Brunswick
Hightstown
Trenton
Bordentown
US 202
US 206
US 1
I-287
I-295
I-95
Co. Rd. 533
Rte. 27
Rte. 29
NJ Tpk.
Delaware River
Millstone River
Assunpink Creek
Jacobs Creek
Stony Brook
Beden Brook
Raritan River
Lockatong Creek
Wickecheoke Creek
Alexauken Creek
1.0
3.0
5.6
6.6
7.1
13.5
15.4
17.1
19.7
20.6
20.9
21.0
21.4
25.7
28.6
31.2
31.4
35.1
37.0
39.3
40.1
40.6
43.6
45.7
47.9
48.4
49.2
51.5
51.7
52.1
54.2
55.0
56.7

SECTION IV

Appendices



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New Jersey Department of Environmental Protection, Historic Sites Section — "Comprehensive Preservation Guide." (Trenton, State of New Jersey, 1975)

III. Acquisitions and Development

Department of Planning and Development, City of Trenton — THE DELAWARE AND RARITAN CANAL-CADWALDER PARK STUDY. (Trenton, City of Trenton, 1975)

APPENDIX B: 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 therefor 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,

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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 mem-

bers 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 section 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 issuing 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 *[$100,000.00]* *$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.

EXPLANATION—Matter enclosed in bold-faced brackets [thus] in the above bill is not enacted and is intended to be omitted in the law.



Designed by Carol Stoddard in Stockton, New Jersey