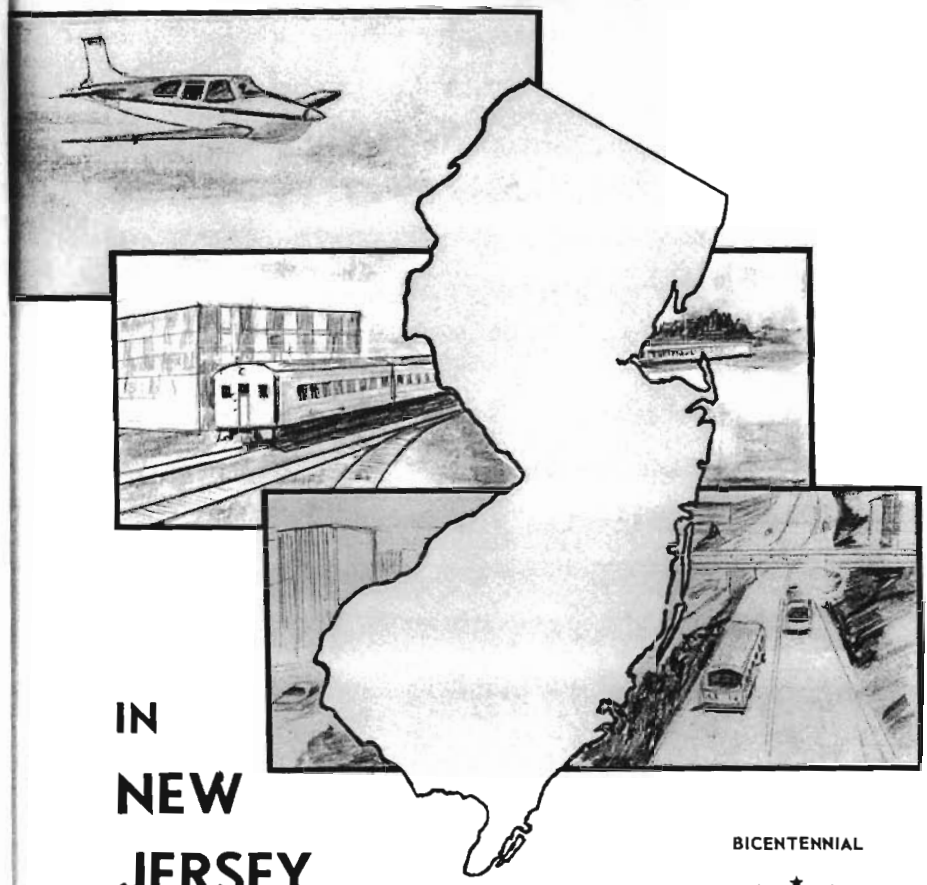
# THE DEVELOPMENT OF TRANSPORTATION IN NEW JERSEY



BICENTENNIAL EDITION

NEW JERSEY
DEPARTMENT OF TRANSPORTATION

## NEW JERSEY: TRAVEL CORRIDOR OF THE REVOLUTION

News travelled across New Jersey fast by horseback in 1775, as described in this historical report of how an account of the opening shots of the Revolution at Lexington was carried by a courier of the Continental Congress from New Haven, Connecticut, to Georgetown, South Carolina.

> Good statistical evidence indicates that well-travelled New Jersey had the best road system in the colonies at the time of the Revolution . . . (After leaving New York, the dispatch started) . . . on the fastest portion of the trip, the ninety-odd miles across New Jersey to Philadelphia. By 7:00 P.M., it was at Elizabethtown; by 10:00 P.M., at Woodbridge; and as the clocks struck midnight, the messenger crossed the Raritan to New Brunswick. He galloped into Princeton at 3:30 A.M., reached Trenton in three hours; and finally arrived in Philadelphia at noon on Wednesday—twenty-two hours from New York—a rate of almost a hundred miles a day! After that things went more slowly . . . [1]

Those who travelled by carriage, however, were apparently less enthusiastic about the conditions of the roads of that day, as the following account of 1775 indicates.

> March 9 . . . From Trenton to Princeton is 12 miles, the roads at present excessive bad . . . March 10. Rose at 4 o'clock in the morning got into our Stage by 5 & set off. It was star light & a very sharp morning; the roads excessive bad . . . It continued so & the roads still most execrable till we came near Brunswick, which is 18 miles from Princeton. Towards Brunswick the County opened, the Land improved & the roads grew better . . . [2]

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1 Robert Greenhalgh Albion, Ph.D., "Early Communications," *The Story of New Jersey*, William Starr Myers, Ph.D., ed., (Lewis Historical Publishing Company, Inc., New York, 1945), pp. 47-48.

2 Philip Padelford, ed., *Colonial Panorama 1775*, (San Pasqual Press, Pasadena, 1939), pp. 22-23.



# THE DEVELOPMENT OF TRANSPORTATION IN NEW JERSEY:

## A Brief History

Prepared By
The New Jersey Department of Transportation
Office of Information Services

"The Development of Transportation in New Jersey" has been reviewed by the New Jersey Bicentennial Commission, which has approved the use of its official logo, and by the New Jersey Department of Education, Division of Curriculum and Instruction, which has endorsed it for use as a supplemental teaching aid in New Jersey schools.

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# CONTENTS

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# foreword

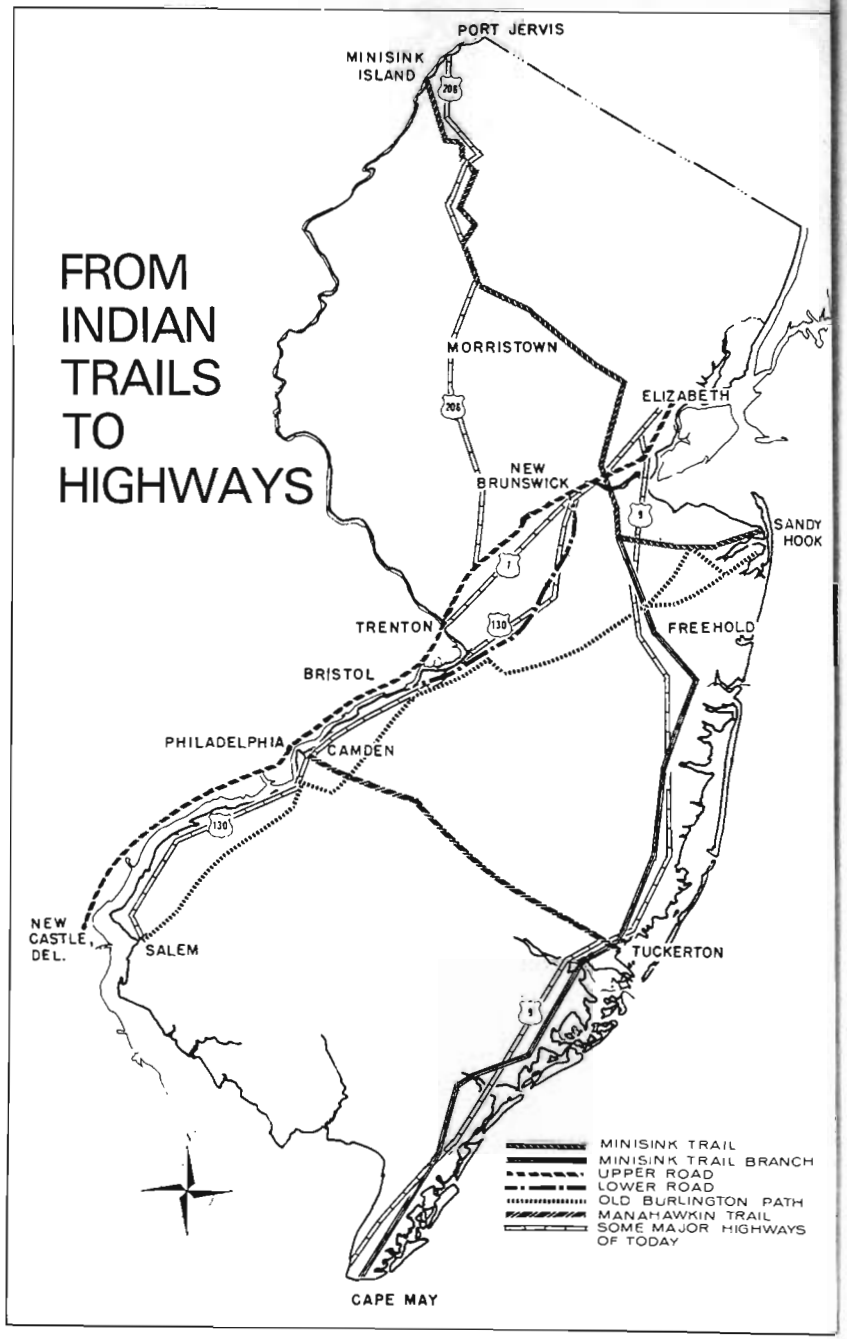
The development of transportation in New Jersey has nourished the State's growth and progress from a sparsely populated agricultural State to a highly urbanized economy, dynamic and versatile in industrial productivity.

As the need for improved communications and transportation increased, what at first were a few Indian trails and natural waterways evolved into networks of highway, railroad, aviation, marine, and pipeline facilities. These five modes of transportation today serve the State and the Nation close by each other in a unique transportation complex in the area surrounding Newark International Airport.

With the heightened emphasis on protecting and enhancing the environment and on conserving energy has come greater recognition of the need to improve and expand mass transportation services and to make more efficient use of the transportation facilities handed down from the past. It is to these objectives that this booklet is dedicated.

I hope you will find this brief history of transportation in New Jersey from Colonial times to our Nation's Bicentennial both interesting and informative.

*Alan Sagner*
*Commissioner*




**Travel Corridors In New Jersey**

## I. HIGHWAYS

The first overland travel arteries in New Jersey were the trails which connected seasonal hunting grounds of the native Indians. It was from the network they formed that the earliest roads grew. Largely footpaths only twelve to eighteen inches in width, they connected the natural waterways and inland points and provided long overland routes.

Trails, paths and roads in use by the inhabitants of New Jersey during the Colonial Period included the Minisink and Manahawkin Trails, Old Burlington Path and the Upper and Lower Roads.

The Minisink Trail afforded a route for the Minisink Indians to travel from their Pennsylvania hunting grounds to the seashore. There they obtained fish for food and shells for wampum. The trail started at Minisink Island in the Delaware River below Port Jervis, went north of Morristown, west of Springfield, six miles west of Elizabethtown, four miles west of Amboy, through Shrewsbury, then to the sea. A branch of this trail began near Cheesequake and continued to Cape May via Freehold, Toms River, Tuckerton and Absecon.

Indians traveling from the shores of the Delaware River near Camden to the vicinity of Tuckerton used the Manahawkin Trail, which passed through Shamong and Washington before reaching the coast.

The Old Burlington Path originated in Monmouth County near Sandy Hook, passed through Shrewsbury, Middletown, skirted Freehold, and went through Allentown, Crosswicks, Bordentown, Burlington and Haddonfield on its way to Salem.

The Upper Road, or High Road, was a combination of several trails used by the Dutch and afforded a route between New Amsterdam and their Lower Delaware settlements. It started at Elizabethtown, passed through Woodbridge and Piscataway, New Brunswick, Kingston, Princeton, Trenton, into Pennsylvania to Bristol and Philadelphia, and on to New Castle, Delaware.

A variation of this route, the Lower Road, branched off about five miles past New Brunswick, went down through Cranbury and Burlington, and crossed the Delaware River into Pennsylvania at Mattinicunk Island halfway between Burling-

ton and Bristol.

Both the Upper and Lower Roads, as well as the Old Burlington Path, became known as the King's Highway.

### *PUBLIC ROADS LEGISLATION*

The first movement toward formalizing roads, as such, came in 1673. At that time the General Assembly of the Province of East Jersey passed its first Public Roads Act. This was followed in 1676 by the second Public Roads Act, aimed at providing a road from Middletown to Piscataway.

The road-building horizons were widened in 1682 when the General Assembly passed an act for "making and settling of highways, passages, landings, bridges and ferries . . . fit and apt for traveling" and named specific men in each county to lay out and build roads—the expense to be met by county taxes.

Under that act, roads were opened in all directions, connecting the existing two main roads at various points and linking then-existing plantations, farms and growing towns. The impetus lasted into the beginning of the 18th Century. It was early in this period that a route later to be known as the Lower Burlington Path was established. It started at Perth Amboy, where a ferry connected to New York, and went

**1872 Covered Bridge, Sergeantsville**



through South Amboy to join the Old Burlington Path.

The Province of West Jersey first officially felt the need for a road system in November, 1681, at which time its General Assembly required that a road be built connecting Burlington and Salem. In 1684, it enacted several more road projects between Delaware River towns.

### *ROADBUILDING SLOW*

The earliest roads achieved little distinction in safety or comfort. The evolution of most from Indian footpaths to horse-and-rider trails, and then to a width sufficient to accommodate a wagon or coach, left much to be desired. Little pains were taken with the roadbeds, and even the traveler on horseback had to be wary of the stumps and mudholes.

By the eighteenth century, New Jersey still had little in the way of formal roads and the roadbuilding process was very slow. Although counties and townships had some authorization, they had little power to collect taxes. The road work was largely dependent upon compulsory road service required of all inhabitants. Such service usually was limited to six or eight days a year.

Natural earth was the universal roadbed. Steep grades, deep ruts and seas of mud were common. Attempts were made to

**Early Earth Mover**

alleviate these conditions by laying tree trunks across the roads —a device known as "corduroying." Coaches frequently overturned. The ruts were so deep that the driver would get assistance from the passengers in keeping the coach upright by calling for shifts of weight: "Now gentlemen, to the right" or "Now, lean to the left!"

### *POST-REVOLUTION CONDITION*

After the American Revolution, there was a rapid increase in the use of vehicles and, as a result, the roads were increasingly in disrepair. The compulsory labor system broke down. Taxes were inadequate and hard to collect. The trip from New York to Philadelphia by stage coach took two days.

It cost about as much to transport goods as it did to produce them; in some instances, it cost more. Salt, for example, sold for a penny a pound at the shore, but sold for six cents a pound inland.

In the latter half of the eighteenth century, roadbuilding was beginning to be recognized as a science established to improve the roads. New Jersey and New York inaugurated systems under which major roads were built by the State but maintained by the townships.

**Early Improved Road near Frenchtown**



### *VARIOUS FINANCING METHODS*

English roadbuilding methods were called to the attention of the New Jersey legislature. In 1788, Pennsylvania started talking about a "turnpike" for the Lancaster Road and, after resorting to lotteries to make repairs, finally granted turnpike rights to a private company.

New Jersey also tried the lottery idea for a time, but a private company was formed in 1795 to build a road from Philadelphia to New York. It was estimated to cost $300,000. About one-fourth of this was subscribed, but the plan lapsed.

### *THE FIRST "TURNPIKES"*

Turnpikes were toll roads built and operated by companies under charter. The concept of such toll facilities had its precedence in Europe and was formalized by England under the Turnpike Act of 1662.

To ensure collection of the toll, a movable barrier with spikes was used to block passage until the toll was paid. Then the toll gate attendant would turn the spikes to permit passage. Hence, the name "turnpike."

Although turnpikes first flourished in the United States about 1801-1828, there had been in 1785 a Maryland-to-Virginia proposal by a company headed by George Washington. In 1793, the Lancaster Pike in Pennsylvania became the nation's first turnpike.

New Jersey rapidly became one of the greatest travel corridors in the United States, mainly because of its position between New York and Philadelphia.

In 1801, the Legislature granted a charter to the Morris Turnpike Company for the first turnpike. This was from Elizabeth through Springfield, Morristown, Succasunna, Stanhope, Newton and Culver Gap to the Delaware River opposite Milford, Pennsylvania.

In 1802, the Legislature authorized the Belleville Bridge and Turnpike Company and the Bergen Turnpike Company. The Bergen Turnpike, on which tolls were collected for more than a century, led from a ferry in Hoboken, across Overpeck Creek and the Hackensack River to Hackensack.

In 1804, at the height of the turnpike movement, the Trenton-New Brunswick and the Newark Turnpikes were

authorized. They made up part of what was to become the most important through highway from New York to Philadelphia, U.S. Route 1.

The Trenton-New Brunswick Road was finished in 1807. Albert Gallatin, U.S. Secretary of Treasury, reporting on the status of a national road project a year later, described it as "36 feet wide, 15 feet of which are covered with about 6 inches of gravel." A few wooden bridges with stone abutments and piers were included. The cost for the 25-mile stretch was about $2,500 per mile.

Except in one instance, New Jersey took no part in the movement to give State aid to turnpike companies. The one exception was the Newark Turnpike, for which the Governor was authorized to subscribe $12,500 for company stock.

## *OTHER ROADS CHARTERED*

The Newark-and-Pompton and the Paterson-and-Hamburg Turnpikes were chartered in 1806. The former ran from Newark (North Broad Street) through Bloomfield to Pompton. The latter ran from Acquackanock Landing (now Passaic) through Paterson, Pompton, Newfoundland, Hamburg and Deckerton (now Sussex) to the Delaware River opposite Milford, Pennsylvania. An extension carried one branch to the Passaic River at Belleville. Another went from Passaic to the Hackensack-and-Hoboken Turnpike on the same line that was later used for the Paterson Plank Road. It served chiefly as a farm-to-market road to New York City.

The first New Jersey Turnpike Company, also chartered in 1806, ran from New Brunswick through Bound Brook, Somerville, Potterstown and Bloomsbury to Phillipsburg on the Delaware River. It was later extended to Perth Amboy through Metuchen.

The Bordentown-and-South Amboy Pike came along in 1816 as part of the New York-Philadelphia route.

Between 1801 and 1828, charters were granted for 54 turnpike companies, but only about 30 turnpikes were actually built. About 500 miles of roads were constructed, and the surfacing was mostly dirt and gravel.

The three biggest centers of the state network in this period were Newark, Morristown and Paterson. Three thoroughfares



ran between Philadelphia and New York: Trenton, New Brunswick and Newark; Bordentown and South Amboy; and Lambertville, Somerville, Plainfield and Newark.

Between 1828 and 1849, only five new turnpikes were chartered. But, in 1849 with the new plank-road enthusiasm in full swing, 10 new roads were legislated and during the next turnpike era of a quarter century some 200 companies were chartered. Most of these were in the southern sections of the State where Camden and Mt. Holly became road centers.

## *WOOD-SURFACED ROADS*

Plank roads were regarded as the cheapest and easiest type to build. They originated in Russia early in the 1800s and were introduced in Canada in 1834, after which their use spread to the United States.

They were the smoothest roads built in their time. Normally built right on top of existing roads, they consisted of a base of three-inch thick and six-inch wide hemlock laid six inches apart, and filled in with well-rammed earth. A three-inch thick wooden floor 8 to 11 feet wide was built on top of that.

Because approaching and overtaking vehicles had to run one set of wheels off the planking in order to pass, shoulders were made even with the planks. Cost of construction ranged

**Highway Construction, Early 1900s**

from $1,000 to $5,000 per mile, with the average being about $1,800 per mile. Two-animal vehicles paid tolls of about 1-1/2 cents per mile. Life of the planking was about five years.

Before the era ended, New Jersey had 25 such roads. At least $10 million was spent in building about 7,000 miles of planked roads in New Jersey, New York, Pennsylvania and Maryland. They were small enterprises ranging in cost from $4,000 to $100,000, few of which exceeded $50,000, and were usually financed by individuals and business interests along the roads.

### *SHUNPIKES SERVE AS CONNECTORS*

Some states permitted construction of free roads from one point on a turnpike to another. These were known as "shunpikes." The turnpikes were successful in getting legislation against such roads. A New Jersey act provided a penalty of three times the legal toll for getting on a shunpike and avoiding passing through the turnpike's toll gate. Other New Jersey acts provided that a person who willfully broke or defaced a road marker or mile stone, damaged a gate, or forcibly passed through without paying toll, be subject to a fine of $20 in addition to a civil suit for damages.

Canals and railroads drove the turnpikes out of existence. Canal building had begun in other States concurrently with

**Remaining Delaware-Raritan Canal near Titusville**



the turnpikes. Railroads powered by steam followed in the 1830s.

New Jersey was late with canals. The Delaware and Raritan Canal, begun in 1834 and completed in 1838, was one of the most successful ever built. The Morris Canal opened in 1836.

The canals lowered freight rates substantially. The Erie Canal, for example, dropped rates from Buffalo to New York from $100 to $5 per ton and cut the travel time to one-third.

### *CONSTRUCTION METHODS*

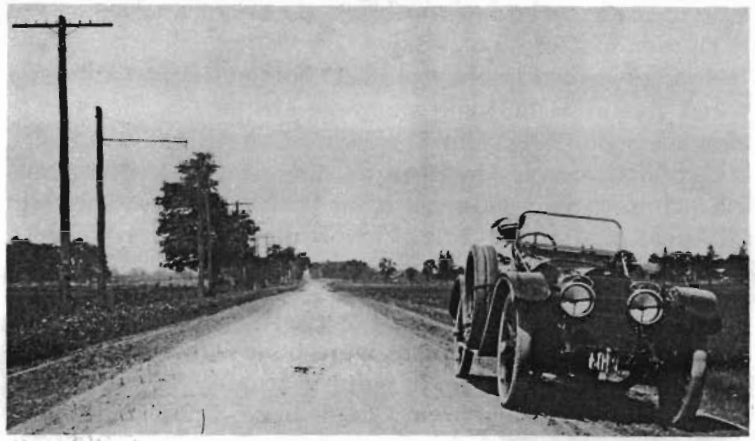
Even the poorest turnpikes were built with some scientific features in mind: distances were shortened by keeping the roads from winding more than necessary; grades were diminished; roadbeds were raised and given proper shape for drainage; ditches were provided, and bridges were built over intervening streams.

The contracts were let usually for five or ten-mile sections. The contractors lived along the route and generally were members of the turnpike company. Labor was drawn from the surrounding area, and the work was usually done in late summer and early autumn when farm work was the least pressing.

The first job was to clear the right-of-way of timber and then take out the stumps and large rocks. The roadbed was then raised by throwing earth from the sides to the center, automatically creating drainage ditches on both sides of the road. In many instances this bed remained as the riding surface.

The surfacing varied. Most legislation provided the road "shall be bedded with stone, gravel, sound wood or other hard substances well compacted together and of sufficient depth to secure a good solid foundation."

By the turn of the century, a new and powerful voice had been added to the clamor for still better roads. In addition to the farm-to-market group, the large membership of bicycle clubs became a demanding factor. They needed hard-surfaced roads to accommodate their activities. The answer was an increase in the number of roads surfaced with water-bound macadam, and, by 1830, macadam became the popular type of construction material.



**Early Resurfaced Road between Trenton and Robbinsville, 1911**

This type of smoother surfacing consisted of a layer of large pieces of broken stone. The voids between the stone were filled with smaller pieces of stone and stone dust. The smaller aggregate and particles were flushed in with water. Surplus material was brushed into the top of the layer to form a relatively smooth surface. A tightly-knit pavement resulted when the material dried, as a natural cementing action took place to some degree.

## *ROAD NETWORK SET*

In 1891, New Jersey moved to the foreground of the national roads picture by becoming the first State to grant monetary aid in the building of public roads. The legislative act that accomplished this provided aid to the counties in the construction of highways to the extent of one-third of their cost and appropriated $75,000 annually to be expended by the president of the State Board of Agriculture as administrator of roads. Middlesex County, the first county to receive State aid for improving public roads, was granted $20,600 in 1893.

In 1912, the Legislature recognized the need for an integrated system of State-built highways. It directed the State Highway Commission to establish a comprehensive network of roads to be known as the State Highway Systems which was not to exceed 1,500 miles.



Under this Act, an overall State highway plan really took hold and began to grow. In 1912, New Jersey laid its first section of concrete highway at New Village in Warren County. In the ensuing period, highways were laid out with more durable characteristics, as the automobile came into prominence.

## *ORIGINAL 15 ROUTES LEGISLATED*

Five years later, the Legislature spelled out the nucleus of today's State Highway System by designating 15 routes as the System. It provided that existing highways could be used wherever convenient to do so, but allowed the Commission to build new ones over acquired rights-of-way and others in continuation of, connecting with, or in addition to those legislated.

The original 15 routes were described as follows:

ROUTE 1. From Elizabeth to Trenton by way of Rahway, Metuchen, New Brunswick and Hightstown.

ROUTE 2. From Trenton to Camden, by way of Bordentown, Fieldsboro, Roebling and Burlington.

ROUTE 3. From Camden to Absecon, by way of Berlin and Hammonton.

ROUTE 4. From a point on Route 1 in or near Rahway to Absecon, by way of Perth Amboy, Keyport, Middletown, Red Bank, Long Branch, Asbury Park, Point Pleasant, Lakewood, Toms River, Tuckerton and New Gretna.

ROUTE 5. From Newark to the bridge crossing the Delaware River about two miles above Delaware, by way of Morristown, Dover, Netcong, Budd Lake, Hackettstown, Buttsville and Delaware.

ROUTE 6. From Camden to Bridgeton and Salem, by way of Woodbury, Mullica Hill, Woodstown and Pole Tavern.

ROUTE 7. From Hightstown to Asbury Park, by way of Freehold, Jerseyville and Hamilton.

ROUTE 8. From Montclair to State line at Unionville, by way of Singac, Wayne, Pompton Plains, Butler, Newfoundland, Stockholm, Franklin Furnace and Sussex.

ROUTE 9. From Elizabeth to Phillipsburg, by way of Westfield, Plainfield, Bound Brook, Somerville, Whitehouse, Clinton, West Portal and Bloomsbury.

Route 1
North
Brunswick
Township

1972

1938

1933

1920



ROUTE 10. From Paterson to Fort Lee Ferry, by way of Dundee Lake and Hackensack.

ROUTE 11. From Newark to Paterson, by way of Belleville, Bloomfield, Nutley and Passaic.

ROUTE 12. From Paterson to Phillipsburg, by way of Little Falls, Pine Brook, Parsippany, Denville, thence over Route 5 to Budd Lake, Washington and Broadway.

ROUTE 13. From New Brunswick to Trenton, by way of Kingston, Princeton and Lawrenceville.

ROUTE 14. From Egg Harbor City to Cape May City, by way of Mays Landing, Tuckahoe and Cape May Court House.

ROUTE 15. From Bridgeton to Cape May Court House, or such other point on Route 14 as may be determined by the State Highway Commission.

## *MORE CARS, MORE HIGHWAYS*

Following World War I, the automobile came into wider use, and the need for more and better highways soon became evident. Also, the demand rose to "get the farmer out of the mud." This resulted in many hard-surfaced roads being constructed by counties as well as by the State in the more sparsely settled sections.

Late in the 1920s, roads were widened to three lanes and emphasis was placed upon the further development of intersections. This was the period when New Jersey built its first cloverleaf at U.S. Routes 1 and 35 in Woodbridge in 1929; first traffic circle at U.S. Routes 30 and 130, and N.J. Route 38

**Traffic near Newark in 1920s**

in Camden in 1925; and first divided highway, U.S. Route 1 in Elizabeth, in 1936.

State highway expenditures reached a new peak in the early 1930s when many new routes were built and dual highways became the design standard where traffic volumes justified their construction.

Bridge design also underwent a change during this period. The trend was more and more to the high-level permanent type of bridge rather than the movable bridge which delayed the traffic that was increasing rapidly each year.

Motor vehicle registration in New Jersey has increased from 765,000 in 1928 to 4.3 million. There are two motor vehicles in the State for every three persons.

Between 1948 and 1969, travel on New Jersey's highways tripled. By the latest count it amounted to about 40 billion vehicle-miles in 1972, when the State Highway System carried half of all New Jersey's traffic.

The State Highway System today totals 2,152 miles. It contains 1,033 miles of two-lane highways, 19 miles with three lanes, 791 miles with four lanes, 236 miles with six lanes, and 59 miles with up to 11 lanes. There are approximately 6,764 miles of county roads and 22,644 miles of municipal roads. Toll highways and other roads total 373 miles, including the Palisades Interstate Parkway. State parks and institutional roads total 486 miles.

## *AID TO LOCAL GOVERNMENTS*

Since 1947, the State has provided financial assistance to counties and municipalities for roadbuilding. The funds are distributed mainly under legislated formulas reflecting area, road mileage and population each calendar year.

State aid averaged about $17 million per year from 1957 through 1966. For 1967 only, the Legislature supplemented, through a new State sales tax, the annual State aid appropriation with special grants of $20 million to counties and $14 million to municipalities, for an overall total of $51 million.

The great increase in highway traffic led the Transportation Department in 1967 to reexamine the State Aid program. It was felt that State Aid funds should be applied toward further development of the secondary network which augments the State Highway System. Under the State Aid program, about



**First Traffic Circle, near Camden, 1925**

70 percent of the funds were being spent for such items as maintenance, materials and payroll costs, but not to improve the overall State road network. In effect, these funds were serving mainly as local tax relief.

To correct this situation, the Legislature in 1967 enacted a law to spur construction of additional local feeder and arterial roads to connect with the State Highway System. This established a State Aid Road System including many county and some municipal roads. Counties are required to match the State's contribution for each project; municipalities provide 25 percent. All State Aid Road System funds are limited to construction, reconstruction or betterment.

## *FEDERAL AID SYSTEMS*

There are approximately 1,430 miles of Federal Aid Primary System roads in New Jersey. The system, which includes State highways, and county, municipal and rural roads, is financed with 70 percent Federal funds and 30 percent State funds.

The Federal Aid Secondary Road System is composed of county rural roads and their urban extensions in or through smaller communities which form an inter-connected network with other Federal aid routes. Of the 1,847 miles of Federal Aid Secondary System roads in New Jersey, more than 80 percent were under county or municipal jurisdiction.

Federal Aid Secondary projects consist of constructing, widening and improving roads and bridges financed with 70 percent Federal funds and 30 percent county or municipal funds. In its function of providing local government aid, the Department is both distributor and watchdog of Federal and State funds and supervisor of the work.

The Federal Aid Urban System consists of 1,440 miles of State, county and municipal roads that serve the major centers of activity, taking into consideration the highest traffic volume corridors and the longest trips within the urbanized areas that best serve the goals and objectives of the community.

Projects on this system include construction, reconstruction or betterment of roads and bridges financed with 70 percent Federal funds and 30 percent State funds.

### *THE INTERSTATE SYSTEM*

Since 1956, a major portion of highway planning and construction in New Jersey, has been devoted to bringing to reality 416.8 miles of the newest and most modern freeways that will comprise New Jersey's part of the 42,500-mile National System of Interstate and Defense Highways. This system is being financed 90 percent by the Federal government from the Highway Trust Fund and 10 percent by the State.

**Construction of Interstate Route 80 near Garret Mountain, Paterson**



## II. RAILROADS

Unlike the history of highway growth, the story of the railroads in New Jersey has run a different course. These carriers once had a dominant role in transporting people and goods, and they prospered. Today, after a long and steady decline in rail patronage accompanied by reductions and discontinuances in service, the railroad industry has come to rely increasingly on State financial aid to keep its passenger trains in operation.

Pioneering the development of rail transportation in New Jersey was Colonel John Stevens of Hoboken. Since he had launched the world's first steam ferry on the Hudson River, Stevens believed that freight could be shipped across land economically on a steam-powered railroad.

In 1812, he wrote to the Commissioners of the Erie Canal requesting $3,000 for an experiment to prove that freight could be transported for 50 cents per ton via steam-operated railroad rather than at the canal's rate of $3 per ton.

Although Stevens' request was refused, he obtained the first railroad charter in the United States on February 6, 1815. Ten years later he ran a "steam wagon," the Nation's first steam-operated locomotive, on a circular track in Hoboken.

### *FIRST COMMERCIAL RAILROAD*

The New Jersey Legislature granted his son, Robert L. Stevens, the State's first commercial railroad charter for the Camden and Amboy Railroad and Transportation Company in 1830. In the same year a charter also was granted to the Delaware and Raritan Canal Company to construct a waterway from the Raritan River at New Brunswick to the Delaware River at Bordentown.

These two companies were merged two years later by a legislative act empowering them to approve the construction of any railroad between New York and Philadelphia.

Robert Stevens continued his family's tradition of pioneering railroad development. While on his way to England to purchase equipment, he designed the first "T" shaped rail, the "hook-headed" spike used to fasten rails to ties, and the "iron tongue" used to join rails.

In 1831, Stevens received a shipment of his newly-designed rails from Wales, and the "John Bull," an English-made steam locomotive for the C & A RR. The rails were laid in Bordentown, and Isaac Dripps, an assistant to Stevens, assembled the "John Bull." On November 12, 1831, the English locomotive made its debut on the tracks before a large gathering of legislators, officials and curious citizens.

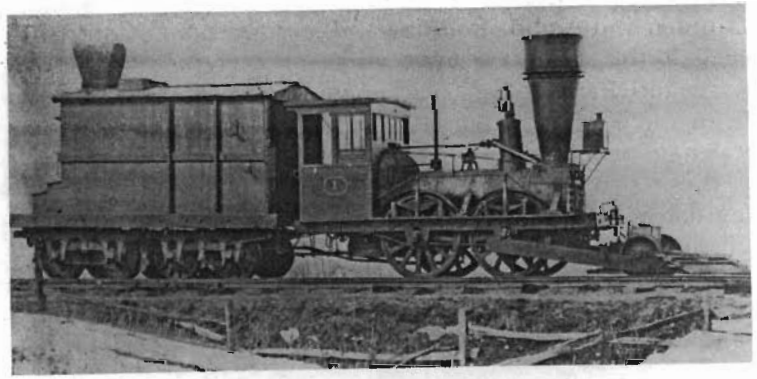
## *EXPANSIONS BEGIN*

Passenger service on the original C & A train, which was horse-drawn, reached Hightstown and South Amboy by the end of 1832 and freight services were added to the line in mid-January, 1833. It was not until later that year that the "John Bull" made its first cross-state trip from Bordentown to South Amboy.

After the tracks reached Camden in 1834, the C & A offered one daily round trip from Philadelphia to New York via steam locomotive in addition to two horse-drawn trains. Time and money were deciding factors as to which train to use. A round trip on the steam line took 14 hours and cost $6. The horse-drawn trip took 18 hours but cost only $4.

During its first year of service the C & A transported approximately 110,000 passengers. In five years this figure rose to 165,000.

The Paterson and Hudson River Railroad Company was granted the State's second charter in January, 1831, and by



**First Steam Locomotive, "John Bull," 1830s**



June, 1832 horse-drawn trains were available for trips between Paterson and Passaic. Service was extended to Jersey City in 1833.

The State Legislature issued a charter to the New Jersey Railroad and Transportation Company in 1832. This company also offered horse-drawn train service to Jersey City via the two drawbridges over the Passaic and Hackensack Rivers and tracks over the swampy Meadows.

In 1835, both the P & HR and the New Jersey Railroads put steam locomotives on their tracks. However, these locomotives could not reach Jersey City until construction crews from each company completed an open cut through Bergen Hill in 1838.

## *CONNECT WITH FERRY BOATS*

The New Jersey line reached Rahway in 1836. It then went on to New Brunswick in 1838, and a year later a link was constructed to connect it with the C & A. Now train service was available from Camden to Jersey City with ferry boat service at each end of the line to take passengers to Philadelphia or New York.

By 1836, horse-drawn train service was available in the northwestern section of the State via the Elizabethtown & Somerville Railroad and the Morris & Essex Railroad. Two years later both railroads had steam locomotives on their tracks. The M & E then began offering freight services and a three-hour morning and evening commuter trip between Morristown and New York.

The Somerville & Easton Railroad was granted a charter in 1847 to construct a line to Phillipsburg. However, in 1849, the S & E and the E & S merged to become the Central Railroad Company of New Jersey. It was not until 1852 that the first train pulled into the Phillipsburg station.

The M & E's journey to the Delaware, however, took a little more time. Once the company received approval in 1851 to extend its line, it took three years before tracks reached Hackettstown. A lack of funds and the Civil War then curtailed the railroad's operations for several years. Finally, in 1865 the M & E reached Phillipsburg.

## LOCOMOTIVES BUILT IN PATERSON

The city of Paterson became the Nation's home, or "stable," of the "Iron Horse" by the end of the 1830s. The factory of Rogers, Ketchum & Grosvenor built the first steam locomotive in the United States in 1837, and by 1850 Thomas Rogers' plant was building 100 locomotives per year. Other Paterson locomotive companies were Swinburne, Smith & Company and Danforth, Cooke & Company. The plants of these three companies covered approximately 14.8 acres of the city and had produced 5,871 locomotives by 1881.

Demand for anthracite coal from Pennsylvania and iron ore from western New Jersey created a greater need for railroads in the mid-1840s. Many small railroads sprouted throughout the coal regions of the two States during this time, but by 1880 they had been absorbed by other companies. The four big railroads of that period in this area were: Lehigh Valley; Lackawanna; Jersey Central; and New York, Susquehanna & Western.

Rail "wars" and the battle for power also began in the second half of the 1800s. The three most noted wars were the "Garbage War," "Tunnel War," and "Frog War."

The "Garbage War" developed when the Jersey Central

**Mulberry Street Trolley Line, near Penn Station, Newark, 1880s**



began dumping New York City garbage in the Hudson River near South Cove, a section of Jersey City, so that a station could be constructed there. Despite the complaints voiced by the citizens of Jersey City, the dumping continued and the station was completed.

A controversy over the use of a tunnel through Bergen Hill resulted in the "Tunnel War," a dispute between the Lackawanna and Erie Railroad Companies. The trouble began in 1870 when the Erie placed a locomotive across the entrance to the tunnel. Although it took an order from the Governor to have the engine removed, the battle continued until 1876 when the Lackawanna completed its own tunnel.

The "Frog War," which reached a climax in 1876, had its origins in 1871, when the Camden & Amboy Railroad Company was leased to the Pennsylvania Railroad Company for 999 years. With this lease, the Pennsylvania Railroad had a monopoly on the Philadelphia-to-New York route. However, in 1873, adoption of the General Railroad Law gave the right to any railroad to build across New Jersey.

With this new law, the Delaware & Bound Brook Railroad Company began constructing tracks from Jenkintown, Pennsylvania, to Bound Brook, where it would connect with the Jersey Central Line. To do this meant crossing the tracks of the Mercer & Somerset Railroad (part of the Pennsylvania line) near Hopewell. The Pennyslvania company attempted to prevent the installation of the "frog," a crossover at the point where the two sets of tracks intersect. This was settled by court action in Trenton and the "frog" was installed.

## ENGINEERING ADVANCES

The second half of the nineteenth century also brought many needed safety innovations to the railroad industry. In 1863, Ashbel Welch of the C & A developed the "all clear ahead" signal system, which combined the use of the telegraph and a manually-operated sign.

Twenty years later the world's first "all clear ahead" automatic semaphore signal system (motor operated) was in use near Phillipsburg at Black Dan's Cut. Welch also designed the first interlocking switch system. This system, which sets all switches at a junction, thereby decreasing the chances of de-

railment, was first used on the Pennsylvania Railroad in East Newark in 1875.

Two other safety devices introduced at this time were air brakes designed by George Westinghouse and the automatic car coupler designed by Hamilton Janney.

Natural barriers fell before New Jersey's railroaders. In 1879, D. C. Haskins began tunnelling under the Hudson River. Although his project ended in disaster in 1880 with a cave-in, the tunnel, from Hoboken to New York (6th Avenue and 19th Street), was completed 28 years later by William Gibbs McAdoo's workmen. The first rail service through the tunnel was offered by the Hudson & Manhattan Railroad Company. [The H & M was acquired in 1962 by the then Port of New York Authority and rehabilitated into the Port Authority Trans-Hudson (PATH) rail transit system.]

Also in 1908 the Lackawanna Railroad began working on its 28-mile "Cut-Off," a new line between Lake Hopatcong and the Delaware Water Gap. This $10 million project, considered at the time as one of the world's greatest engineering accomplishments, was completed in December, 1911. It reduced passenger trip time by 20 minutes and freight trips by 60 minutes.

## *TRANSITION TO ELECTRICITY*

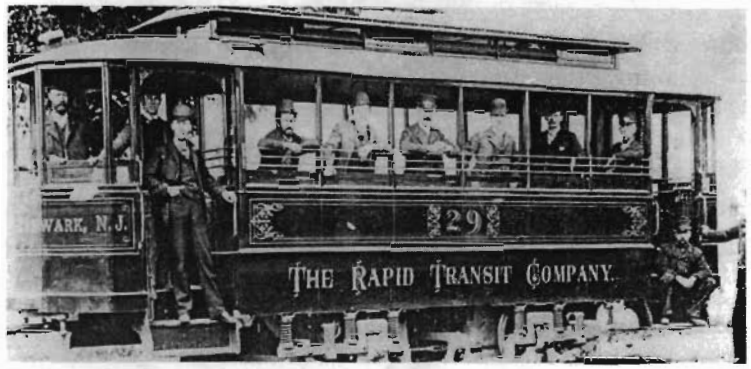
Meanwhile, urban mass transportation had begun to take on a new look in 1890. The horse-drawn street cars, which had dominated the scene since the 1860s, slowly disappeared as the trolley (the electric street car) started to gain popularity.

In July, 1890 the Passaic, Garfield & Clifton Railway Company, which received the first State charter in 1889 for a totally electric railway, ran its first three-car electric train. Three months later the city of Newark had its first trolley when the Newark Passenger Railway Company sent its car No. 1, the "Irvington," up Market Street and Springfield Avenue.

The Seashore Electric Railway Company, based in Asbury Park, was the only completely electrified rail company in the State. The Seashore had 21 cars and ran on a seven-mile track.

By the turn of the century, trolleys were almost everywhere, and all-day excursions were not uncommon. For instance, a trip on the "Fast Line" took passengers from Jersey City to






**Central Avenue Trolley Car, Newark about 1890**

Trenton in five hours. Another five-hour trip from Jersey City took vacationers to the mountain resort area of Lake Hopatcong.

## *COMPANIES CONSOLIDATE*

Although the number of trolley lines increased, the cost to operate power stations caused many companies to consolidate. This led to the founding of the Public Service Corporation in 1903, which provided gas and electric services to the general public and electric power for street railways.

The PSC was comprised of the Public Service Gas Company and the Public Service Electric Company when it was founded. In 1907, the corporation created a third division, the Public Service Railway Company, which assumed all trolley-related activities.

Trolleys eventually were supplanted by motor buses, and the railway company was succeeded by Public Service Coordinated Transport. In 1972, PSCT became Transport of New Jersey, the State's largest bus operator.

The early 1900s brought about another change in railway industry electrification. In 1910, the Pennsylvania Railroad electrified its line from Manhattan Transfer station near Newark to Pennsylvania Station in New York.

During the 1930s, the Pennsylvania began a $2 million program to extend its electrification facilities to Washington, D.C. The electrification reached Trenton in 1933 and Washington in 1935.

The Lackawanna Railroad also electrified its train facilities from Hoboken to Morristown in 1930, and a year later electrified train service reached Dover and Gladstone.

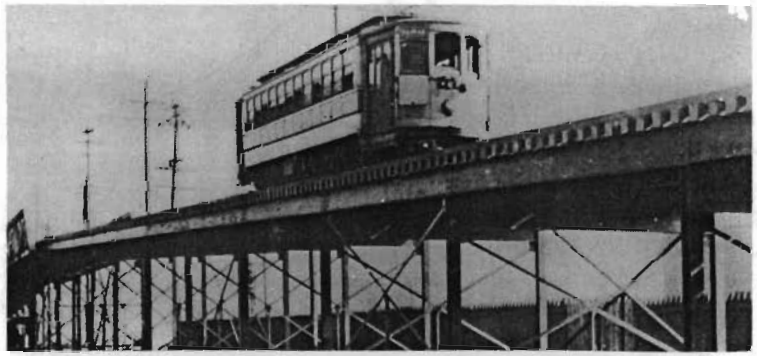
## *DECLINE SETS IN*

Freight and passenger volumes on the State's railroads varied during the 1900s. Freight traffic, which totaled more than 410 billion ton-miles in 1920, grew to about 450 billion ton-miles in 1929. Although the Great Depression caused a decline in freight traffic, World War II brought the volume up to 747 billion ton-miles in 1944. This figure dropped again in 1961 to 563 billion ton-miles. In 1920, the railroads' passenger-miles reached 47 billion. However, this dropped to less than 20 billion in 1962.

In general, rail service in New Jersey began to decline after World War II as more people and industries shifted to the automobile, bus, truck and airplane for their transportation needs. By 1959, the loss of rail patronage had reached an all-time low, causing the first railroad abandonment. Rail revenues, particularly from passenger service, dropped steadily and drove some carriers to bankruptcy and others to the brink of insolvency.

## *STATE BEGINS AID PROGRAM*

The passenger rail transportation responsibilities of the Department of Transportation were initiated in late 1958 when



**Trolley Line at Wilson Avenue, Newark, 1918**



the Governor requested the Commissioner to study New Jersey's commuter rail problem and make recommendations toward its solution.

Early in 1959, in advance of the shutdown of the West Shore Division of the New York Central Railroad and the ferry which transported many passengers across the Hudson River between Weehawken and New York City, the Commissioner made suitable arrangements with bus lines serving the area so that when the shutdown occurred any inconvenience to commuters would be minimal.

Spurred by this experience and other impending cutbacks in rail service, legislation creating a Division of Railroad Transportation within the then State Highway Department was enacted on March 4, 1959. In April, 1960, the Division released a report containing suggestions for immediate remedial action and long-range proposals.

This received public endorsement, and contracts were negotiated with all major commuter lines to provide them with the financial assistance that would ensure the continuation of essential passenger service in the State. The program cost at the start was less than $6 million a year, or less than the cost of constructing one mile of modern freeway in an urban area.

This pioneering program provided for payments to the carriers on the basis of the financial loss they would have avoided if they were not required to furnish passenger service. From 1961 to 1974, the total annual payments appropriated by the Legislature for this purpose amounted to more than $146 million.

## *THE ALDENE PLAN*

One of the Transportation Department's first efforts was the development of its Aldene Plan (named after a rail junction near Cranford). This project, a major consolidation of passenger service operated by the Central Railroad of New Jersey, went into effect April 30, 1967, shortly after the railroad had filed a petition of bankruptcy.

It involved rerouting the Jersey Central's mainline and shore passenger trains into Newark's Pennsylvania Station over the rights-of-way of the Lehigh Valley and Penn Central Railroads.

The project included new track connections, terminal and storage yard installations, track and signal improvements, a new passenger station, elimination of grade crossings and rehabilitation of passenger cars. It was financed by the State with Federal assistance. The Aldene Plan, by effecting an annual savings of $1.5 million, recovered the State's investment by 1970 and made possible the abandonment of the Jersey Central's passenger terminal in Jersey City, its antiquated and costly ferry service and its passenger terminal in Newark.

## *CAPITAL IMPROVEMENTS*

In another of a number of moves to preserve and improve essential commuter service with capital improvements, the Department in 1967 awarded a $9.9 million contract for manufacture of 35 stainless-steel, high-speed electric passenger cars for use by the Penn Central Company (formerly the Pennsylvania and New York Central Railroads) on its main line

**MetroPark Park & Ride Station, Woodbridge**



between Trenton and New York City. The State and Federal government shared the cost of these cars.

The first cars went into service on October 30, 1968. Other improvements for Penn Central include the construction of MetroPark, a major park-and-ride station near the Garden State Parkway in Woodbridge, completed in November, 1971, and a new Trenton station, completed in August, 1973. The first units of an additional order of 70 new cars were delivered in 1974.

Other railroads also received improved or new equipment. Thirteen new locomotives were leased to improve service on the Jersey Central. Since January 21, 1971, 155 new passenger cars and 32 locomotives, purchased with $41.5 million in 1968 Transportation Bond Issue funds, were placed in service on the non-electrified lines of the Erie Lackawanna Railway.

A total of 220 cars, including equipment acquired from Western railroads, were refurbished and placed in service on the Penn Central, Erie Lackawanna, Jersey Central and on the Pennsylvania-Reading Seashore Lines in South Jersey.

**Passengers Boarding Jersey Arrow Cars at Rahway Station**

## III. BUS TRANSIT

During the early 1900s, a new mode of transportation, the jitney or motor bus, appeared in the urban regions of the State. The jitney, forerunner of today's bus, was an open air touring car and carried as many as seven passengers. Because of its speed, mobility, low fares and ability to reach points beyond the existing trolley lines, the jitney became a threat to trolley companies. (The term, "jitney," stems from the French word, "jeton," meaning five cent fare or coin.)

The Kates Act, passed by the State Legislature in 1916, established the first set of regulations governing jitney operations. It required fixed routes and schedules, operating permits from the local municipality and Board of Public Utility Commissioners, a five percent franchise tax and a minimum liability insurance of $5,000 per car.

In 1921, the Legislature passed the Elliot Act, which classified the bus as a public utility when operating on streets that paralleled railway companies' operations. This act, however, did not end the battles between trolley and bus owners.

**Jitney Service in Newark, during Trolley Strike, 1919**



Fare wars, trolley-men strikes and bitter competition continued until 1924, when the court ruled that bus and trolley service should be coordinated through single ownership. Since the Public Service Corporation (now Transport of New Jersey) owned most of the trolley companies at that time,it was selected to coordinate these activities by purchasing the permits of competing bus lines.

Public Service became the major bus company in the State in the ensuing years by obtaining other bus companies' permits. For example, between 1924 and 1926 Public Service acquired a majority of permits from the Springfield Avenue Route Association, which originally had 44 independent bus owners. Today, there are only four independent carriers within the association.

### *INTERSTATE SERVICE BEGINS*

Interstate bus commerce began in 1925, and by the end of that year there were 11 interstate bus lines between New Jersey and New York City.

The Paterson-New York Transit Company, Inc., was the first known bus company to offer service between New Jersey and New York City. The company ran 10 daily trips along its 19-mile route from Paterson to New York via Clifton, Passaic, East Rutherford, Rutherford, Secaucus, Union City and Weehawken. A one-way ticket was 75 cents.

Before the Holland Tunnel was opened to traffic in 1927, bus companies used ferry boats to cross the Hudson River. There were approximately 120 deluxe parlor coaches (buses) making more than 710 ferry crossings a day to the city by the end of 1925. Bus companies paid one dollar per bus plus two or three cents per bus passenger for ferry boat service, and in 1925 this averaged $1,100 per day in tolls.

Interstate bus service from New Jersey to New York and Pennsylvania increased as the Hudson and Delaware Rivers were crossed by bridges and tunnels.

For about 10 years after the end of World War II, the bus industry maintained its high popularity. Then as more people shifted to the automobile, bus companies began losing money.

### *SUBSIDIES PROVIDED*

The Legislature, in 1969, approved a program of financial aid for essential bus services in imminent danger of abandonment. The program provided for a county to share with the State in supporting operations serving that county.

Since 1969, subsidies for bus operations have totaled $9.7 million. In 1974, 23 companies received this aid, including Transport of New Jersey. In addition, since 1972, $5 million has been provided for a feeder bus service in five southern counties to serve the Lindenwold High Speed Line, built by the Delaware River Port Authority, and which began rail transit service in 1969 between Lindenwold, New Jersey, and downtown Philadelphia.

In 1973, the Department spent $1 million on a pilot project, the purchase of 29 air-conditioned buses of various sizes and seating capacities, in a capital improvement program for New Jersey's bus industry. The new buses were leased for $1 a year to bus operators throughout the State to replace coaches 20 years old or older.

**Exclusive Bus Lane at the Lincoln Tunnel**



## IV. AVIATION

Surprisingly, aviation in New Jersey began before rail or bus transportation systems were in use. In 1793, Jean-Pierre Blanchard, a French adventurer-balloonist, completed the country's first man-carrying interstate balloon flight at Woodbury. The trip, which began in Philadelphia, lasted 46 minutes.

The first manned parachute descent in the United States was made by Louis Charles Guille in 1819 in Jersey City.

Charles Ferson Durant of Jersey City was the first professional ballonist in the United States. Durant, who received his flight training in France, piloted his hydrogen-filled balloon from Castle Garden, New York, to South Amboy in 1830.

The use of balloons increased during the 1800s and by the time of the Civil War, balloon flights were used for military observations.

Balloons evolved into the lighter-than-air ships, or dirigibles, and by 1919 Lakehurst Naval Air Station became known as the "Lighter-Than-Air Capitol of the World." It served as the home base for every Navy dirigible and the German trans-Atlantic airships Graf Zeppelin and Hindenburg. The latter ended a trans-Atlantic flight in disaster in 1937 when it burst into flames while approaching a mooring mast at Lakehurst.

### *AIRPLANE DEBUTS*

Meanwhile, in 1907, the first heavier-than-air ship in New Jersey made its debut in Iselin, and by 1909 the first airplane company, the Wright Company, began manufacturing aircraft in Paterson. One year later at the Atlantic City Air Carnival, Richard Brookins in a Wright bi-plane became the first pilot to reach an altitude of more than one mile (6,176 feet). The Legislature passed the first law to regulate such flying exhibitions in 1913.

Two years later the Aeromarine Company was founded in Keyport and during World War I this plant manufactured patrol planes for the Navy.

Other airplane manufacturers during the early 1900s included Standard Aircraft Corporation of Linden, Witteman-Lewis Company of Teterboro and Wright Aeronautics Corporation of Wood Ridge.

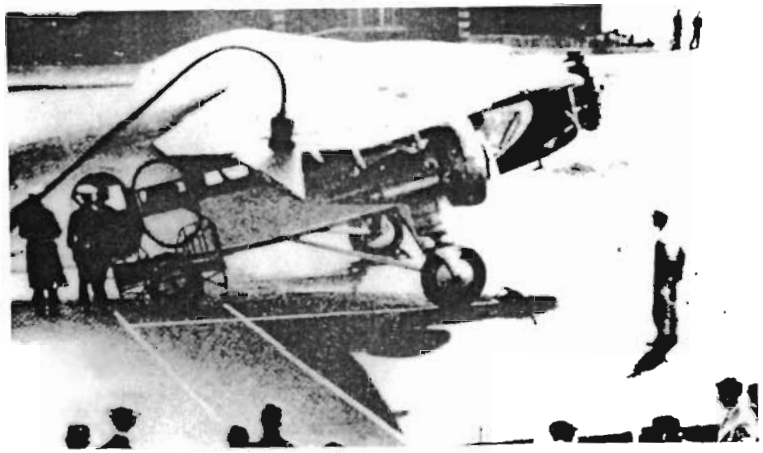
Although temporary air mail service was offered from Bayonne to Perth Amboy, Ocean City and Stone Harbor in 1912, it was not until 1918 that the first full time air-mail service in the country began. This mail route, which extended from Curtiss Field, Long Island, to East Potomac Park in Washington D.C., included Hadley Field in South Plainfield as an alternate landing site.

In 1927, Air Express Service, a freight operation, began at Hadley Airport and by 1928 Hadley had two international air services. One route transported passengers and mail to Montreal, Canada, and the other carried mail to Mexico City, Mexico.

## *FAMOUS FLIGHTS*

It was at another aviation facility in North Jersey, Teterboro Airport, that Anthony Fokker built "America," a tri-motor airplane, which was used by Commander Richard E. Byrd to fly across the Atlantic Ocean to France in 1927.

On May 20 and 21 that same year Charles Lindbergh completed the first solo trans-Atlantic flight from New York to Paris in 33 1/2 hours. His flight prompted the officials of the city of Newark to make a decision favoring a municipal airport in Newark and by 1928 construction began on the then 68-acre site.



**Ford Tri-Motor Refueling at Newark Airport, 1933**



During the Twenties and Thirties, the "romantic age" of flying, several record-breaking aviators utilized airport facilities in New Jersey. Among them were Charles Lindbergh, Eddie Rickenbacker, Amelia Earhart, Howard Hughes, Clarance Chamberlin, Bernt Balchen and James Doolittle.

In 1929, the Legislature adopted the Uniform Aeronautics Act, which set up regulatory standards in the field of aviation.

## *STATE AGENCIES CREATED*

The State Department of Aviation, the office of the State Director of Aviation and the State Aviation Commission were created by the Legislature in 1931. Additional regulatory measures for aviation were enacted and these were later modified and expanded.

The Federal Government, in 1946, established the National Airport Plan for a nationwide network of airports to meet commercial and military emergency needs. The plan provided for Federal matching grants to public agencies for construction of publicly-owned airport facilities. Grants to New Jersey airports amounted to almost $33 million by mid-1973.

In 1948, after the Departmental reorganization set by the new State Constitution a year earlier, all of the State's aero-

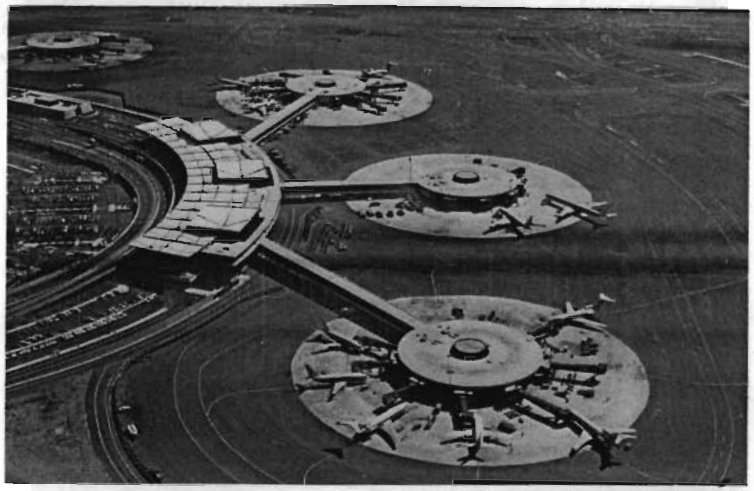

**Small Airports Serve Business and Industry**

nautic functions were transferred to the then Department of Conservation and Economic Development. With the creation of the Department of Transportation in 1966, they were absorbed by the new agency.

### *FACILITIES EXPAND*

As airplanes became more popular for transporting people and goods, the demand for a larger and more functional Newark Airport increased. Today, almost 50 years since its founding, Newark has grown from a 68-acre facility to a 2,300-acre international airport costing over $400 million.

New Jersey, among all the States, has the highest pilot and aircraft density per square mile with about 20,000 active certified pilots and approximately 3,500 registered aircraft, not including commercial airliners. Air commerce is served by about 450 aeronautical facilities. These include 83 publicly and privately owned public-use airports and landing fields, 69 private aviation landing strips and some 300 heliports and helistops, both public and private. At the 57 most heavily used of the 83 public-use airports there are approximately 2.5 million aircraft movements by general and commercial aircraft, moving more than 8 million passengers.



**Satellite Terminal Facilities at Newark International Airport**



## V. WATER AND PIPELINE

Navigation on the waterways serving New Jersey and use of the gas and oil pipelines which traverse New Jersey have contributed to the economic development and physical growth of the State and to the greater Newark and Camden areas in particular. Although their times of origin differ, water and pipeline transportation have become a principle means of transporting products.

Water transportation was used by the colonists during the 1600s to explore the State's navigable waters and inland regions. In 1614, Captain Cornelis Hendricksen sailed a 16-ton sloop, the *Onrust,* north on the Delaware River as far as Brooklawn. Seven years later, a company of Dutch soldiers established the first port along the Delaware River at the present location of Gloucester. This port, known as Fort Nassau, served as a military and fur trading post.

North Jersey waters also were explored during the 17th Century. Robert Treat sailed through Newark Bay and up the Passaic River to the vicinity of Mulberry Street in Newark in 1666.

John Fitch's development of a steam powered engine for marine vessels added a new dimension to water transportation in the late 1780s. After building several types of steamboats, he successfully operated a 45-foot steamboat on the Delaware River before members of the Constitutional Convention. Fitch later built a larger steamboat which carried passengers and freight between Philadelphia and Trenton.

For several decades sail-type vessels delivered raw materials and products to docks along these waterways which served the industries, merchants and communities in the area. However, in the mid-1800s, steamboats came into prominence and quickly replaced sailboats. By this time steamers were delivering their cargos to Gloucester, Camden, Trenton, and to Philadelphia, which was becoming the dominant port on the Delaware.

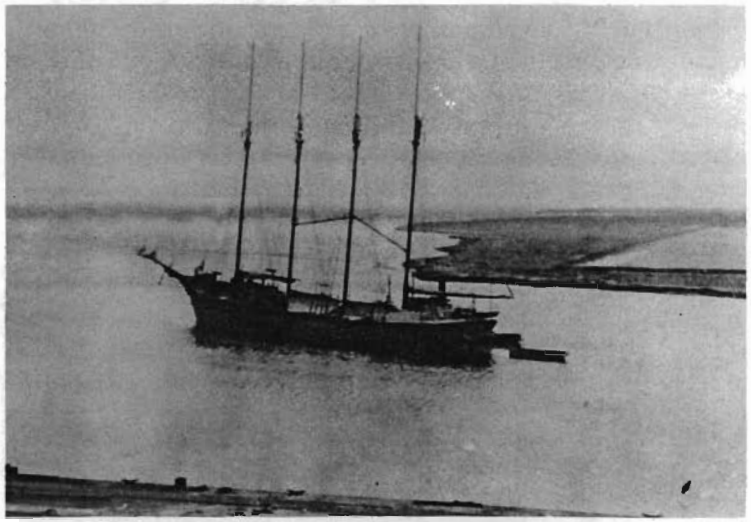
### *PORT NEWARK DEVELOPED*

While port facilities were being developed to serve ships on

the Delaware, officials in Newark were discussing the possibilities of converting the large marshlands next to Newark Bay into a port capable of handling ocean-going vessels. In 1914, ground was broken near Peddie Creek to create a 20-foot-deep channel. One year later, the city of Newark hosted more than 10,000 people at the official opening of Port Newark. During that year, two miles of railroad track were laid on Port Street, bulkheads were installed to retain the reclaimed land and streets were graded. The first ship to unload its cargo at the seaport was the *A.J. West,* a schooner which had carried mahogany from Manila.

With the outbreak of World War I, Port Newark was used by the military to help the war effort. Following the end of the war, further development of the port was curtailed by the Great Depression and World War II. However, in 1948, the then Port of New York Authority assumed responsibility for the operation and development of Port Newark, thereby freeing the City of Newark from the financial burden of providing capital funds for port development.

When the Authority took over the operation of Port Newark,



**Schooner *A.J. West*, First Ship to Arrive at Port Newark, 1916**



there were only 14 usable deep-sea berths. Today, under the Port Authority of New York and New Jersey, the 800-acre seaport has more than 22,000 linear feet of wharf for sea-going vessels. In 1973 the seaport handled more than 884 vessels and 3,438,903 long tons of cargo.

### *NEW PORT FACILITIES*

Seeing the need for additional port facilities, the Authority began construction on the marshlands south of Port Newark in 1958. The new facility, the Elizabeth-Port Authority Marine Terminal, was created by dredging Bound Creek into Elizabeth Channel. It was completed in 1962.

Specializing in handling containerized cargo, this 1,165 acre port, referred to as "America's Container Capital," has 19 container cranes and 16,624 linear feet of berthing space. In 1973, Elizabeth Port handled 1,125 vessels and more than 7,360,740 tons of cargo.

Meanwhile, along the Delaware River the demand for more ports increased as more industries developed in the area. In

**Containerized Shipping at Port Elizabeth**

1972, waterborne commerce had destinations of Trenton, Bordentown, Fieldsboro, Burlington, Florence, Roebling, Riverton, Delanco, Beverly, Camden, Gloucester, Paulsboro, Thompson Point, Penns Grove and Carneys Point. In that year, these ports handled more than 43 million short tons of cargo.

Another function of water transportation in New Jersey is recreation. In addition to the many navigable lakes and rivers in the State, boating enthusiasts have access to the Atlantic Ocean. They also can navigate on protected waters from the Manasquan Inlet, south to Cape May, and north to Trenton via the Inland Waterway, a distance of 231 nautical miles.

Statewide, there are approximately 253 marinas and boat basins, and in 1974, there were more than 130,000 boats registered for recreational purposes.

### *PIPELINES*

The history of pipeline transportation began after the Civil War when the oil industry needed a better method of transporting crude oil from the fields to the refineries many miles away. Prior to the introduction of pipelines, crude oil was transported in barrels via wagons, barges, and railroads.

The first pipelines in New Jersey were built during the 1880s by National Transit Company, an affiliate of the then Standard Oil Company, and Tidewater Pipe Company. The pipelines, which originated at two different locations in Pennsylvania, transported oil across the State to refineries in Bayonne.

Petroleum pipelines were constructed across the Delaware River at various locations as new refinery companies began operations in the State. Today, there are five operating refineries and 568 miles of petroleum pipelines in New Jersey. These pipelines enter the State near Frenchwood, Trenton, Paulsboro and Bridgeport and terminate in the greater Linden and Newark area.

New Jersey also is served by more than 21,000 miles of natural gas pipelines. These pipelines, which enter the State near Camden, Trenton, Lambertville, Hutchinson and Montague, transport natural gas to the North Jersey metropolitan region and across the State boundary to New York.



## VI. THE STATE TRANSPORTATION AGENCY

Evolution of the State agency responsible for development of transportation began as early as 1891, when the Legislature designated the president of the State Board of Agriculture to be the administrator of roads. Under the Public Roads Act of 1894, he became State Commissioner of Public Roads.

This prevailed until 1909, when the Legislature created a four-member State Highway Commision. The Commission consisted of the Governor, President of the Senate, Speaker of the House and the Commissioner of Public Roads. Its main function was to supervise preparation of a plan for an "Ocean Highway" from Atlantic Highlands to Cape May.

Eight years later, a new act provided for a State Highway Department to be governed by an eight-member State Highway Commission, of which two members were required to be qualified and competent engineers. The Governor was designated as a member ex-officio, and the Commissioners were appointed by the Governor with the advice and consent of the Senate.

Organizational refinements of the Highway Department were undertaken by the Legislature during the 1920-1940 period of highway construction and expansion. In 1923, the eight-man State Highway Commission was replaced by a four-member commission.

Then, in 1935, the four commissioners were completely supplanted by just one State Highway Commissioner to serve under the Governor as administrative and executive head of the Department. This structure prevailed until 1966, by which time transportation conditions in the State and the northeast region had undergone extensive change.

### *DEPARTMENT ESTABLISHED*

It was an awareness of major deficiencies in all areas of transportation, as well as deep concern about the future, that prompted establishment by the Legislature of the Department of Transportation on December 12, 1966, effective retroactively to July 1, 1966.

New Jersey was the first State in the continental United States to adopt the concept of an integrated approach to all

## STATE ADMINISTRATORS 1892 TO PRESENT

1892-1894 — Edward Burrough, as president of the State Board of Agriculture, was made responsible for administration of the 1891 State Road Aid Law.

**Commissioners of Public Roads:**

1894-1895 — Mr. Burrough was appointed State Commissioner of Public Roads under a May 17, 1894 act creating that office.
1895-1905 — Henry I. Budd.
1905-1908 — Elijah C. Hutchinson.
1908-1911 — Frederick Gilkyson; In 1909, legislation initiated a four-member State Highway Commission, which included the Commissioner.
1911-1917 — Col. Edwin A. Stevens; On March 3, 1917, a new act provided that a State Highway Department be governed by an eight-member State Highway Commission, which would select a chairman at its organization each year.

**State Highway Commission, Chairmen:**

1917-1920 — John W. Herbert, Helmetta.
1920-1923 — George L. Burton, South River; The State Highway Commission was reduced to four members in 1923.
1923-1933 — Maj. Gen. Hugh L. Scott, Princeton.
1933-1935 — Col. Arthur F. Foran, Flemington; In 1935, legislation set up a single Commissioner, to be appointed by the Governor.

**State Highway Commissioners:**

1935-1942 — E. Donald Sterner, Belmar.
1942-1950 — Spencer Miller, Jr., South Orange.
1950-1954 — Ransford J. Abbott, Red Bank.
1954-1966 — Dwight R. G. Palmer, Short Hills.
1966 (Jan.-July) — Russell H. Mullen (Deputy; Acting), Hamilton Township; In 1966, the Legislature established an overall Department of Transportation to be administered by a single Commissioner appointed by the Governor.

**Commissioners of Transportation:**

1966-1970 — David J. Goldberg, Lawrence Township.
1970-1974 — John C. Kohl, Trenton.
1974- — Alan Sagner, South Orange.



transportation problems. Even the U.S. Department of Transportation did not become operational until nearly nine months later.

Under the Transportation Act of 1966, the newly-created Transportation Department absorbed the functions of the State Highway Department as well as the Bureau of Aeronautics, which was transferred from the then Department of Conservation and Economic Development.

The law provides for a Commissioner of Transportation to head the Department, to be appointed by the Governor with the advice and consent of the Senate. In brief, the Act directs the Commissioner to assume the following responsibilities:

1. Develop and maintain a comprehensive master plan for transportation development.
2. Develop and promote programs to foster efficient and economical public transportation services in the State.
3. Prepare plans for the preservation and improvement of the commuter railroad system.
4. Develop plans for more efficient public transportation service by motorbus operators and facilitate more effective coordination between bus service and other forms of public transportation, particularly the commuter railroads.
5. Cooperate with interstate commissions and authorities, State agencies, appropriate Federal agencies and interested private individuals and organizations in the coordination of plans and policies for the development of air commerce and facilities.

### *COMMUTER OPERATING AGENCY*

A major policy-making body in the Department is the Commuter Operating Agency (COA). It consists of four members: the Commissioner of Transportation, the Assistant Commissioner for Public Transportation, the State Treasurer and the President of the Board of Public Utility Commissioners, or persons designated by them.

The COA has the authority to contract with rail and bus carriers to conserve and improve necessary commuter services and to contract for the purchase and improvement of

capital facilities essential to those services.

The Transportation Act of 1966 also authorized establishment of a Commuter Advisory Committee consisting of the Assistant Commissioner for Public Transportation as chairman and ten other members appointed by the Governor: two citizens of the State who are commuters; two mayors of municipalities or two freeholders of counties served by railroads under contract to the State; two officials of unions representing employees of railroads under contract to the State; two officials of railroads or motorbus carriers under contract to the State; and two public members who are citizens of the State.

This committee's duties are to consult with and advise the Commissioner on problems of commuter service and to conduct such studies of specific commuter matters as the Commissioner may direct.

## *NEW FUNDING PROVIDED*

The Department has demonstrated that it has the technical and production capabilities to meet the State's transportation needs if given adequate tools—money and personnel.

Prior to 1955, the State's average annual highway construction program totaled $25 million. From 1955 to 1969, programs averaged $140 million a year; from 1970 through 1973, the annual average was $175 million. The highway construction programs were expanded mainly because of increased Federal aid since 1956 and the start of the Interstate System.

**Meeting of State Commuter Operating Agency**



A Transportation Bond Issue approved in November, 1968, helped further to boost non-interstate highway construction. More significantly, it provided the first substantial funding for capital improvements for mass transportation.

Under the mandate of the Transportation Act of 1966, the Department, in 1968 published "A Master Plan for Transportation." It indicated that in the following 20 years overall construction costs for needed transportation improvements would amount to an estimated $3 billion. For highways, this meant that some $2.75 billion would be needed in the two decades, while about $375 million would be required for public transportation in a 10-year period.

On the basis of an evaluation of the most critical needs, the Department concluded that $1.2 billion was required to carry out the essential improvements. A bond issue of that size was proposed to the Governor and Legislature—$1 billion for highway purposes and $200 million for mass transportation. The Governor's Commission to Evaluate the Capital Needs of New Jersey, a committee of prominent citizens, recommended that $800 million in transportation bond funds—including the full $200 million for public transportation—be provided to carry out the first half of the improvement program.

The Legislature reduced the highway portion to $440 million but left intact the amount of $200 million requested for public transportation. The total $640 million bond issue was approved by public referendum in November, 1968.

## *INTERNAL REORGANIZATION*

In mid-1971, the Department acted to provide greater efficiency in management and operations with a substantial reorganization along functional lines. The Department was restructured to integrate the traditional divisions, which, in effect, had been oriented basically toward a highway program.

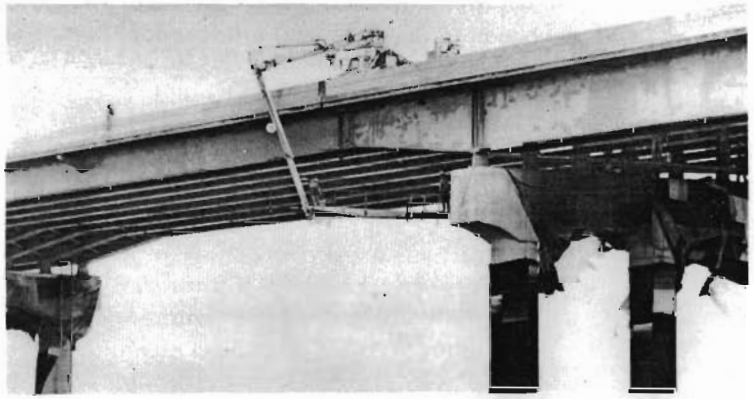
New divisions and bureaus were developed on the basis of the managerial and operating functions required to be performed. They took into consideration recommendations of the Governor's Management Commission to strengthen the Department's ability to carry out its responsibilities in the areas of public transportation and aeronautics as well as highways.

The new organization streamlined internal communications through the consolidation of supervisory responsibilities. The former operating and administrative areas of Highways, Public Transportation, Planning, and Administration were supplanted by Transportation Planning and Research, Engineering and Operations, Fiscal Management, and Employee and Management Services.

### *MASTER PLAN UPDATED*

A continual reappraisal of the State's transportation needs is required because of New Jersey's rapid land development, its shifting travel demands and population growth. So, in 1972, the Department presented an updated 20-year Master Plan that proposed a reordering of transportation priorities, and reflected the impact of inflation. The plan estimated that $4.2 billion would be needed for highways and $2.2 billion for public transportation including $49 million for airport development.

A proposed $650 million transportation bond issue, including $410 million for highway construction and $240 million for public transportation, was rejected by the voters in 1972. Two years later, proposals for a $200 million bond issue for highway improvements and a $100 million contingency fund to preserve rail lines subject to possible abandonment were similarly turned down.



**"Snooper" Device Aids In Bridge Maintenance**



## VII. AUTHORITIES AND OTHER AGENCIES

In addition to the State Department of Transportation, seven semi-autonomous authorities and four other State agencies have major responsibilities in the operation or regulation of transportation services in New Jersey.

Transportation planning on a regional basis is carried out by the Tri-State Regional Planning Commission for the New Jersey-New York-Connecticut metropolitan region, and by the Delaware Valley Regional Planning Commission for the Trenton-Camden-Philadelphia region.

Of the authorities, four are the creations of the State of New Jersey in cooperation with one of the neighboring States. The authorities may issue revenue bonds to finance their construction and operating needs.

### *NEW JERSEY TURNPIKE AUTHORITY*

In 1947, the State Highway Department began construction in Woodbridge and Carteret on Route 100, which later became the 141-mile New Jersey Turnpike. The grading work that had been accomplished was taken over by the Turnpike Authority, which was created by the Legislature in 1948. The Authority consists of five members appointed by the Governor with the advice and consent of the Senate to serve specific terms.

**New Jersey Turnpike Interchange, Secaucus, World's Largest Toll Plaza**

The Turnpike was opened to traffic from the Delaware Memorial Bridge to Route 46 in Ridgefield Park, not far from the George Washington Bridge, in January, 1952. An 8-mile spur from the vicinity of Newark Airport to the Holland Tunnel was completed in 1956. A 6-mile spur connecting the Turnpike from near Bordentown to Florence and the Pennsylvania Turnpike was opened in 1956. And in 1970, a 10-mile westerly spur to U.S. Route 46 in Ridgefield Park was opened. Total cost of the main route, the major widening from Newark to East Brunswick as a dual-dual facility and its spurs was about $1.3 billion, financed with bond issues.

### *NEW JERSEY HIGHWAY AUTHORITY*

In April, 1952, the Legislature created the New Jersey Highway Authority to issue bonds and complete the proposed 164-mile Route 4 Parkway that had been started by the State Highway Department in 1947. Because of limited appropriations, the Department had completed only 19 miles before this Authority carried on.

The entire length of the originally planned main route, from Paramus to Cape May, was opened as the Garden State Parkway in July, 1955. A 9-mile extension from Paramus to the New York Thruway, near Suffern, New York, was opened in July, 1957. Total cost of the route was $330 million. Of the 173 miles of the Parkway, trucks are permitted on the southernmost 97 miles.

**Garden State Parkway Exit, Clark**

In 1974, the Authority completed a $70 million widening project extending 21 miles from the Raritan Toll Plaza to the Asbury Park Toll Plaza. It increased the Parkway from 6 to 10 lanes.

The Highway Authority consists of 7 members appointed by the Governor with the advice and consent of the Senate to serve specific terms.

### *NEW JERSEY EXPRESSWAY AUTHORITY*

A third roadbuilding authority was created February 19, 1962, when State legislation established the New Jersey Expressway Authority to construct the Atlantic City Expressway. The five Authority members serve specific terms upon appointment by the Governor with the advice and consent of the Senate.

The legislation authorized construction of the Atlantic City Expressway from the southern terminus of Route 42 in Camden County southeasterly to Atlantic City, with a spur to Cape May to be added if and when deemed necessary. The major portion of the Expressway from Route 42 to the Garden State Parkway, a distance of 37 miles, was opened in 1964. The final 7-mile portion into Atlantic City was opened in 1965.

The State Transportation Commissioner, or his representative, serves as the Governor's liaison and advisor to the foregoing Authorities and acts as coordinator of their programs.

### *PORT AUTHORITY OF NEW YORK AND NEW JERSEY*

The States of New Jersey and New York in 1834 entered into an agreement determining and fixing their rights and obligations in and about the waters between the two States, especially New York Bay and the Hudson River.

In 1921, the States amended that agreement by creating the Port of New York District, which includes nine counties in Northern New Jersey, and by creating the Port of New York Authority to operate within the District. The Authority may undertake only those projects which have been authorized by

**George Washington Bridge, Looking Toward New Jersey Palisades**

both States; it has no taxing power and may not pledge the credit of either State. The Authority must raise funds for capital projects by borrowing money on its own credit and on the basis of its own revenues. In 1972, its name was changed to the Port Authority of New York and New Jersey.

The Authority is directed by 12 Commissioners, the Governor of each State appointing six, subject to confirmation by the respective State Senates. The Commissioners serve without compensation for overlapping terms of six years.

Projects and activities of the Authority are in the areas of land, air and water transportation and world trade. Facilities include: the George Washington, Goethals, Outerbridge Crossing and Bayonne Bridges; the Holland and Lincoln Tunnels; Midtown and George Washington Bridge Bus Terminals; Port Authority Trans-Hudson (PATH) rail transit system; John F. Kennedy and Newark International, LaGuardia and Teterboro Airports; West 30th Street and Downtown Heliports in Manhattan; Newark, Elizabeth, Hoboken, Brooklyn and Erie Basin Marine Terminals, Port Authority Grain Terminal and Columbia Street Pier, New York; Port Authority Buildings; New York and Newark Union Motor Truck Terminal; and the World Trade Center.



## *DELAWARE RIVER AND BAY AUTHORITY*

The Delaware River and Bay Authority was created in January, 1962, by New Jersey and Delaware to plan, finance, construct and operate crossings and transportation or terminal facilities between the two States across the Delaware River and Bay.

Each State Governor appoints five members with the advice and consent of the respective Legislatures. They serve without compensation for terms of five years.

The Authority's facilities are the twin spans of the Delaware Memorial Bridge across the river between Pennsville, New Jersey, and New Castle, Delaware, and a ferry service across the bay between North Cape May, New Jersey, and Lewes, Delaware.

## *DELAWARE RIVER JOINT TOLL BRIDGE COMMISSION*

The Delaware River Joint Toll Bridge Commission was created by an interstate compact between New Jersey and the Commonwealth of Pennsylvania in 1934. It maintains and operates six toll bridges and 13 tax-supported bridges, including two pedestrian bridges, over the Delaware River from the New York State border to the Philadelphia-Bucks County line.

Three bridges within the Commission's boundaries are owned and operated by other agencies. They are: Dingman's Ferry Bridge, maintained by Dingman's Choice and Delaware Bridge Company; Turnpike Bridge, connecting the New Jersey and Pennsylvania Turnpikes, controlled by the Pennsylvania Turnpike Commission; and Burlington-Bristol Toll Bridge, operated by the Burlington County Bridge Commission.

The Commission investigates the necessity for additional bridges, issues bonds, collects tolls, rentals and charges for redemption of bonds, payment of interest, and for administration, operation and maintenance of all toll bridges and makes necessary roadway improvements within municipalities in order to provide better bridge approaches.

Each State has five representatives on the Commission. New Jersey's members are appointed by the Governor with the consent of the Senate and serve three-year terms. The State

Treasurer, Auditor General and Secretary of Transportation of Pennsylvania are ex-officio members of the Commission by law. The two remaining members are appointed by the Governor with the approval of the Senate and serve until replaced.

Major responsibilities for regulating various transportation services, enforcing laws pertaining to transportation or seeking improvements in certain transportation activities are vested in four other agencies of the State government.

### *DELAWARE RIVER PORT AUTHORITY*

Under a compact between New Jersey and the Commonwealth of Pennsylvania, the Delaware River Port Authority was created in 1931 as the Delaware River Joint Commission. The compact has been amended twice to keep pace with broadening responsibilities placed upon it by the two States.

The Authority is empowered to build and operate bridges and tunnels, to engage in projects for the improvement and development of the port and to build and operate a rapid transit system within a 35-mile radius of Camden and points within Philadelphia.

Sixteen Commissioners comprise the Authority. All eight New Jersey Commissioners are appointed by the Governor with the advice and consent of the Senate. Six of the Pennsylvania Commissioners are appointed by the Governor with the advice and consent of the Senate. The other two, the Auditor General and State Treasurer, are ex-officio members. All serve without compensation for five-year terms.

**Lindenwold High Speed Line at Westmont Station**



Under the jurisdiction of the Authority, which covers eight New Jersey counties, are the Philadelphia-Camden Port facilities, the Benjamin Franklin, Commodore John Barry and Walt Whitman Bridges, the Lindenwold High Speed Line and a new bridge to link Delair, New Jersey, with Bridesburg, Pennsylvania.

### *DIVISION OF MOTOR VEHICLES*

A Department of Motor Vehicle Registration and Regulation, responsible for administering motor vehicle laws, was created in 1906 as part of the Secretary of State's Office. In 1926, it became a separate department of State government.

In the early years, motorists were required to provide their own license plates and submit a declaration of their driving competence. A system of driver examination was inaugurated in 1913.

After vehicle registrations passed the one million mark in 1938, New Jersey launched a periodic inspection program which required motorists to have their vehicles inspected twice a year. However, by 1956, this inspection requirement was reduced to once a year.


**Motor Vehicle Inspection Station, Route 1, Lawrence Township**

In 1948, the Department assumed its present status when it was designated a division of the newly-created Department of Law and Public Safety.

The Division of Motor Vehicles is responsible for the administration and enforcement of Title 39, Motor Vehicle and Traffic Regulations. Its operations affect more than four-million New Jersey vehicle owners and as many drivers, in addition to millions of non-residents who use New Jersey's highways annually.

Division activities include driver licensing and vehicle registration, protection of vehicular ownership rights and the safety inspection of private and commercial vehicles. Motor Vehicles, which has more than 2,100 employees, has 56 agencies, 37 inspection stations and 20 driver qualification centers located throughout the State.

### *BOARD OF PUBLIC UTILITY COMMISSIONERS*

The Board of Public Utility Commissioners was created by an act of the Legislature in 1911. It is responsible for ensuring that New Jersey citizens receive safe, adequate and proper utility service, that the utility companies maintain a reasonable rate of return and that the companies operate in such a way as to protect the environment. The utilities originally under jurisdiction of the Board included electric, gas, telephone, telegraph, water, sewer, express carriers, canal, oil, subway and intrastate railroad and bus services.

Since 1952, seven utility services have been added to the Board's jurisdiction. These are bus operations, special bus operations, cable television, public movers, the transportation and disposal of solid waste and natural gas pipeline utilities.

The Board regulates railroad and motor bus utilities through its Division of Common Carriers, Engineering, and Rates and Accounts.

Rail-related activities include inspecting tracks, rolling equipment and stations of intrastate railroads, and investigating train delays, citizen and municipal complaints and accidents involving equipment, personnel and passengers.

Bus functions include issuing Certificates of Public Convenience and Necessity to bus companies desiring to operate in the State, inspecting all mechanical equipment which must meet certain standards set by the Board, and testing exhaust



emission of buses to ensure that the standards set by the Department of Environmental Protection are maintained.

Except for passenger operations subsidized by the State through the Commuter Operating Agency of the Department of Transportation, the Board must approve all rate increases of intrastate railroad and bus companies. It also approves the sale, lease and/or mortgage of all personal property belonging to railroad or bus companies, and the sale or transfer of all security issues of bus companies.

The Board is administered by three full-time Commissioners. Its staff of 200 receives and investigates approximately 10,000 consumer complaints a year.

### *STATE POLICE*

The State Police organization was created by an act of the Legislature in 1921. A training program was established at Sea Girt that same year and by December, 81 officers and troopers completed their training and were ordered to duty.

The original force had two troops. Troop A, which covered southern New Jersey, was headquartered in the old Raleigh Hotel in Hammonton and had seven substations. Troop B's headquarters unit, located in the Imperial Hotel in Netcong, and its five substations covered northern New Jersey. In 1928, a third troop was established to cover the central section of the State. It consisted of three substations with headquarters in Freehold.

During the 1930s and early 1940s, because of the Great Depression and World War II, State Police activities were curtailed. However, in 1946, the State force began to expand.

In 1948, through Executive action, the Department of State Police became a Division within the newly-created Department of Law and Public Safety.

Eight years later, the Division's activities included a Civil Defense and Disaster Control Center, Heavy Duty Rescue School, Municipal Police Training Academy, Criminal Investigation Section, the Nation's first State Police Underwater Recovery Unit and two additional troops, one to patrol the New Jersey Turnpike and the other to patrol the Garden State Parkway.

The State Police, which has an authorized force of 1,740,


**Highway Patrol Promotes Travel Safety**

devotes nearly one-fourth of its time to traffic-related activities.

### *OFFICE OF HIGHWAY SAFETY*

After passage of the National Highway Safety Act in 1966, the Department of Transportation began planning a unified State-level highway safety program.

In March, 1968, the Governor, by Executive Order, created a formal Highway Safety Program Committee. This action enabled the State to receive Federal Aid Highway Safety Funds for State and municipal projects.

The State Legislature, in 1971, passed the Highway Safety Act, which expanded the existing program and transferred it from the Department of Transportation to an Office of Highway Safety in the Division of Motor Vehicles.

Since its inception, the Office of Highway Safety has utilized more than $15 million of Federal and State funds to finance over 580 highway safety improvement projects. These projects range from establishing entire police traffic enforcement bureaus to defensive driving instruction for school bus drivers.

The Office focuses attention on police traffic services, pedestrian safety, driver education, motorcycle safety, emergency medical services, rehabilitation of convicted drunken drivers and traffic engineering.



## VIII. LOOKING AHEAD

Looking to the future, New Jersey will have to improve and expand its present transportation facilities beyond even some current advanced thinking. Forecasts of increases in population, motor vehicle registration and miles of travel, for instance, predict with reasonable accuracy some of the major factors that must be dealt with and provided for in the future to help assure adequate transportation in the State.

The population of the State in 1970 was approximately 7.1 million. It has been forecast to reach 10.3 million in 1990—a rate of growth greater than either of the neighboring states of Pennsylvania or New York.

Moreover, the 1970 census showed that New Jersey has reached an average density of 953 persons per square mile to surpass the 905 persons per square mile density of Rhode Island, formerly the Nation's most densely populated State.

It has been estimated conservatively that motor vehicle registrations will increase from 3.79 million in 1970 to 9.6 million by 1990 and that vehicular travel in New Jersey will increase from 39.9 billion to around 71.2 billion vehicle-miles per year.

Such forecasting is part of the work of the Transportation Department in developing its master plans. These factors, together with labor, industry and other trends throughout the State, are considered in preparing transportation proposals and programs.

### *ENVIRONMENTAL CONSIDERATIONS*

As the Department works to meet New Jersey's transportation needs in highways, rail, bus, mass transit and aviation, uppermost among the planning considerations is the need to protect the environment. The Department recognizes the importance of preserving the fragile ecological balance that has evolved over billions of years and that this balance can be irreversibly damaged if appropriate protective measures are not taken or critical decisions made at the earliest stages of project development.

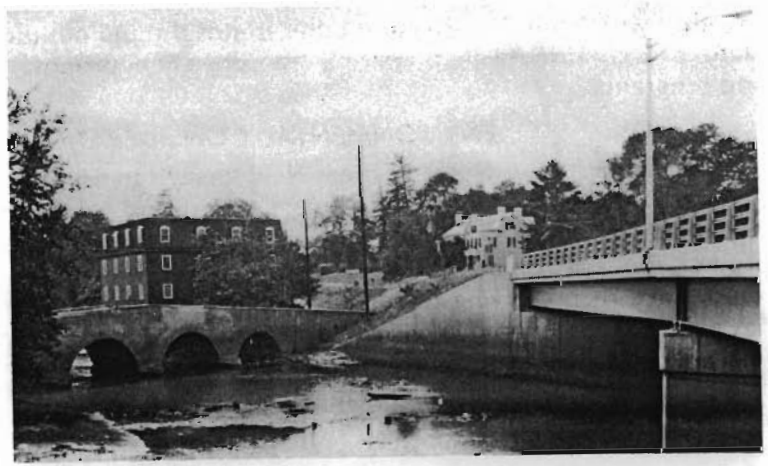
In 1972, the Department adopted a policy of formally assessing the environmental impact of ALL highway and public

transportation projects in accordance with Federal standards whether or not such an assessment was required.

An Environmental Impact Statement (EIS) is prepared for each environmental review and it must explain what impact a project would have on the entire range of environmental concerns: socio-economic, air quality, noise, water quality, natural resources, aesthetics, wildlife, open space and recreational opportunities, salvage of ancient artifacts—archaeological or paleontological—and historical sites.

The EIS process has heightened the awareness and concern in the Department for potential changes in the environment that new highways, mass transit, or aviation projects might bring. Circulation of a draft EIS for public review and commentary is intended to obtain a diverse response for consideration in preparing the final statement. The EIS process on a number of occasions has resulted in the altering of planned improvements to prevent damage to the environment.

Department environmentalists and engineers, in planning for the future transportation needs of the State, are stressing, now more than ever, the importance of developing a transportation system in which the various modes, using highways, rails and air lanes, complement each other. The objectives



**New Route 27 Bridge over Millstone River, Kingston, and 1789 Stone Arch**



are not only to reduce air pollution but also help to conserve the limited supplies of fossil fuels that provide the energy needed for our highly industrialized economy and mobile society.

## *COMMUNITY INVOLVEMENT*

In 1974, the Department expanded its efforts to encouarge greater involvement by the citizens of New Jersey in the planning and decision-making process.

Although the Department previously had been attempting to develop public participation through various types of meetings and hearings, the creation of a separate unit responsible for involving the public formalized this objective, gave it additional emphasis and expanded the scope and extent of activities.

For it was the growing recognition that only by attempting to find out from the people of New Jersey how they themselves want to shape their future can the Department expect to be able to plan for future transportation that will meet the desires of our citizens.

And that, after all, is the true function of Government in our democracy.

**Community Involvement Meeting, A Phase of Transportation Planning**

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