

PEOPLE

the transportation connection

A Brief History of the NJDOT



New Jersey Department of Transportation





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Dedicated to all past and present employees of the New Jersey Department of Transportation

New Jersey State Library



James Weinstein
Commissioner of Transportation

This organization has a great history – a history entwined with New Jersey's successes. The development of transportation and the economic development of the state are virtually one and the same. The New Jersey Department of Transportation has been instrumental in creating, designing, constructing and maintaining transportation for more than a century.

New Jersey is a state on the move. Its citizens greeted the advent of the 21st century with a vital complex of ports, highways, airports and bus and rail systems to move goods and people and provide services. It is difficult to imagine the state as a wilderness with footpaths as major arteries.

Local residents helped to turn the Indian trails into turnpikes, build canals and developed today's highways, public transit systems and airports. This transportation history is also their history, told through the individuals and groups who actually worked to build one of the best and most heavily used transportation networks in the country.

Many "firsts" have come from this Department because transportation is directly connected to our way of life. It is important for people who work here today to know the contributions of those who preceded them and be inspired by them to add their own list of accomplishments.

October 2001

Travels through time



I. Before the 1900s page 4

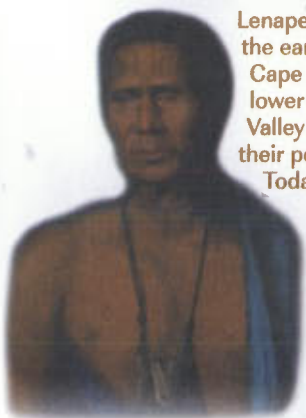


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Before the 1900s



Lenape Chief **Lappawinsoe** was a leader in the Delaware Nation in the early 1700s. In the 1600s the Delaware Nation extended from Cape Henlopen, Delaware north to include the west side of the lower Hudson Valley in New York and west to the Delaware River Valley and numbered 20,000. Wars and 14 epidemics reduced their population to 4,000 and white settlement forced a move west. Today most of the 16,000 Delawares live in Oklahoma.

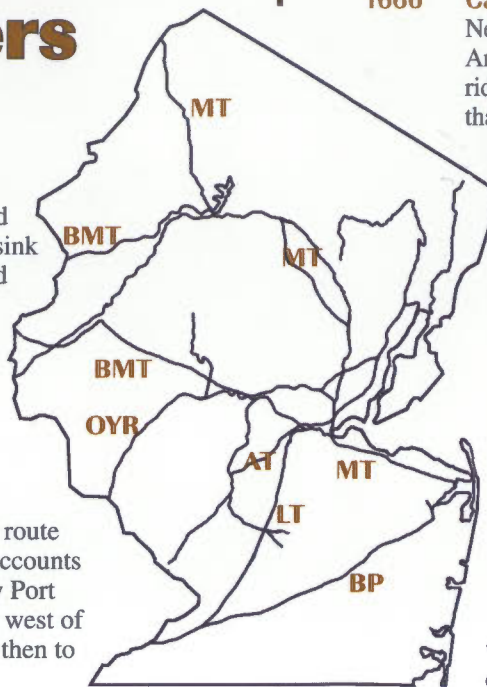
Trailblazers

The state's first citizens were Native Americans. They used the waterways and forged trails in Scheyechbi, their name for New Jersey. Known as the Lenni Lenape, or original people, they and other tribes and subtribes such as the Powhatan-Renape, Minnisink and Hackensack traveled these trails to neighboring villages and farms and to hunt.

European settlers based their transportation network in this, one of the smallest mid-Atlantic states (167 miles long by 75 miles wide), on parts of what are traditionally accepted as Native American trails.

Minnisink Trail

The Minnisink Indians blazed a trail that was possibly their route from the Pennsylvania hunting grounds to the seashore. Some accounts show it started at Minnisink 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.



Upper or High Road*

This trail started at Elizabethtown, passed through Woodbridge and Piscataway, New Brunswick, Kingston, Princeton, Trenton, into Pennsylvania to Bristol and Philadelphia and New Castle, DE.

Old Burlington Path

Originating near Sandy Hook, this trail extended to Salem.

Lower Road*

This passage began five miles from New Brunswick, extended to Philadelphia and ended in New Castle, DE.

Visitors from Europe

Florentine explorer Giovanni da Verrazzano sailed from France to the shores off Sandy Hook in 1524, but he did not settle in New Jersey. However, others did.

1609 Henry Hudson sailed the *Half Moon* into New York harbor to settle the Dutch colony of New Netherland (now Manhattan). Shortly after, the Swedes and British claimed settlements in New Jersey along the coast.

1614 Captain Cornelius Hendrickson sailed the *Onrush* north on the Delaware River to Brooklawn in Gloucester. Captain Jacobson Mey, for whom Cape May is named, settled Fort Nassau, which today is Gloucester City.

1666 Captain Robert Treat led a settlement on the Passaic River, known as Newark. The settlers gradually moved inland and followed the Native American trails, although footpaths barely 12 to 18 inches wide made riding a horse or driving a horse drawn vehicle perilous. They found that the travel and transport of goods was challenging. The terrain was rocky and muddy, with thick woods.

New Jersey was two separate provinces, divided into West Jersey and East Jersey, with Provinceline Road running through central New Jersey. It needed a transportation system that would improve road and water travel for the inhabitants.

Colonial roads with Native American origins

AT	Assunpink Trail	LT	Lower Trail
BMT	Branch of Minnisink Trail	MT	Minnisink Trail
BP	Burlington Path	OYR	Old York Road

*The Upper and Lower Roads, along with most Colonial roads, were later called Kings Highway. Today the Upper Road is known as Route 27.

First public road acts

Several public roads acts were passed by the East Jersey and West Jersey assemblies to build public roads and fund them by county taxes:

East Jersey Assembly

- Public Roads Act of 1673.....Formalized roads
- Public Roads Act of 1676.....Provided a road from Middletown to Piscataway
- Public Roads Act of 1682.....Provided for the layout of highways, bridges, landings and ferries; also named specific men in each county to build the roads

West Jersey Assembly

- Public Roads Act of 1681.....Provided a road from Burlington to Salem
- Public Roads Act of 1684.....Provided roads between Delaware River towns

Land travel

To connect farms and plantations, roads opened in all directions. The Lower Burlington Path started at Perth Amboy at a ferry (see “Water travel” section) connection to New York, went through South Amboy and joined the Old Burlington Path. That was the good news, but problems occurred. In 1768 William Franklin, Benjamin Franklin’s son and the last New Jersey royal governor, referred to road travel between New York and Philadelphia as jarring because of the bad roads. He said the roads “between the two chief trading cities in America are seldom passable without danger or difficulty.” Similar issues and solutions are noted in the chart at the far right.



The early 19th century stage coach driver on the Philadelphia to New York turnpike noted the distance by looking for brownstone markers set at intervals along the roadway, such as the one shown above right. INSET: Mile marker from Route 1 near New Brunswick.

19th Century Issues and Solutions

Funds

Counties and townships lacked the authority to collect the taxes assessed to pay for the roads and labor, which slowed road building and maintenance. A lottery was a temporary solution, but was soon abandoned.

Toll roads

Turnpikes were toll roads with movable barriers and spikes to block passage at intervals, until the traveler paid the toll. Between 1801 and 1828, 54 private turnpike companies received charters to build roads. They included the Morris Turnpike in 1801, the state’s first turnpike, and the Trenton-New Brunswick Turnpike in 1804. Legislation supported the toll roads by imposing penalties against drivers on shunpikes (free roads) three times the legal toll for avoiding a toll road and by fining drivers \$20 if they “willfully broke or defaced a road marker or milestone, damaged a gate or forcibly passed through a toll without paying.”

Labor

Compulsory road work by local residents was required six to eight days a year, not sufficient to build and maintain the roads.

Private companies

Private companies provided materials and labor. The exception was the publicly-funded Newark Turnpike, built in 1804.

Materials

Since dirt was the common material used, roads were soft and uneven with tree stumps and mud holes. Horse-drawn vehicles overturned; passengers helped the driver by shifting their weight on command: “lean to the right; lean to the left.”

Structure

Plank roads made from three-inch thick and six-inch wide hemlock planks laid six inches apart, filled in with well-compacted earth and topped with a three-inch thick wooden floor, were constructed on top of existing roads. Private companies built plank road turnpikes with an average cost of \$1,800 per mile. Between 1850-1875, private companies received charters for 200 additional turnpikes in Camden and southern New Jersey. Macadam (developed by Scottish engineer John L. MacAdam 1756-1836) was used on roads to smooth and level them. It consists of layers of stones about the size of golf balls rolled and held together by spraying them with water, asphalt or tar, or a mixture of Portland cement and sand.

Bridges

Bridges were scarce in the 17th and 18th centuries because of the cost and lack of durability. In colonial days most bridges were often a few logs dropped across a stream with sawn timbers fastened to them to provide a flat, relatively even surface. Often a handrail was added on one side for safety. The local municipalities commonly funded these bridges.



The Green Sergeant's Covered Bridge situated near Flemington in Hunterdon County, built in 1866, is also known as the Sergeantville Bridge. It was restored in 1961 as a result of local efforts culminating in this ceremony.

There was an exception to these primitive bridges. Built in 1806, the covered Trenton Bridge across the Delaware River was 1,008 feet long and 36 feet wide. It was unique; travelers came from all points to inspect the engineering marvel that lasted until 1876, when it was replaced.

The road improvements enabled travel to expand from a single horse rider to stage wagons for several people. Travelers referred to them as "flying machines" because of their speed. This New Jersey first was a heavy farm wagon or Jersey wagon with huge wheels and a hooped cloth top that required four to six horses to pull it.

New stage coaches and carriages with flattened tops, seats with backs that were mounted on springs and hanging straps began serving the public as early as 1772. They even had windows.

Travel by stagecoach from Philadelphia to New York via Bristol, Trenton, Elizabeth and Newark took two days, cost three shillings (\$60)* and seated eight persons. Today the trip takes one hour and fifty-five minutes; a one-way train ticket costs \$43.

*One shilling in 18th century England was equivalent to \$20 in today's United States currency.

Water travel

The population of New Jersey grew steadily from 32,000 in 1726 to 184,000 in 1790 and demanded mobility. Water travel was always an option in New Jersey which is surrounded by the Hudson River, Arthur Kill*, which runs along the western shore of Staten Island, the Kill Van Kull, which flows north of the island into Upper New York Bay, the Atlantic Ocean and the Delaware River. For all but 50 miles in the north, the state is entirely surrounded by water. Boats were an integral means of transport.

Vessels included:

Flatboat and raft

In early colonial times the sloop, the flatboat and the raft were used on the water. The largest flatboat had a capacity of 10 tons and used a crew of four, usually Dutch. Going upstream, two crew members wore a harness as they pulled the boat along the bank, while the other two crew members guided and pushed the boat with poles.

Other vessels included:

Durham boat

This large, flat bottom boat, used from the mid-1700's to 1865, primarily carried iron made at the Durham Furnace, but also carried wheat, corn and flour. About 60 feet long and 8 feet wide, the boat carried the great part



of the freight between Philadelphia and the upper Delaware River. General George Washington used Durham boats, which carried 40 soldiers and an eight-man crew each, to cross the Delaware River on

Christmas Eve 1776. Early on Christmas Day they attacked the Hessians at Trenton before marching to Princeton for a surprise attack on the British garrison.

Steamboat

John Fitch developed the steamboat in 1785. After demonstrating a 45-foot steamboat on the Delaware River before members of the Constitutional Convention, Fitch developed a larger boat that could carry passengers and freight between Philadelphia and Trenton. By the mid-1800s steamboats traveled to Gloucester, Camden, Trenton and Philadelphia.

*"Kill" is Dutch for channel.



The citizens of Bedford, IN and the Indiana Limestone Industry presented the three-dimensional interpretation of the 1851 Emanuel Leutze painting on America's bicentennial in 1976. The memorial, which shows the men navigating the Durham boat through icy waters with oars and poles, stands in Washington Crossing Historic Park on the Pennsylvania side of the Delaware River.

Ferries

This type of vessel played a key role in crossing rivers. Redford's Ferry began as a commercial venture in 1687 to connect South Amboy and Perth Amboy, then the capital of East Jersey. Powered by horses, the 90-foot long ferry design had three hulls and a deck 35 feet wide. Paddle-wheel driven, it was connected by gear with an upright axle and had a shaft pulled by horses as they walked in a circle. In the early 1700s the ferry began passenger service. One of its most famous passengers, Benjamin Franklin rode the ferry on part of a trip from New York to Philadelphia.

Other ferries at the turn of the century included the Indians Ferry on the Raritan River at New Brunswick in 1697; the Amboy to Navesink ferry in 1700; and many private ferries. By the time of the Revolution, 22 ferries operated on the Delaware River north of Trenton and 15 operated south of Trenton.

The Trenton Ferry operated on the Delaware River in the mid-1700s, for a part of the trip from Philadelphia to New York. Swedish pastor and naturalist Peter Kalm, who resided in Swedesboro as an interim priest at Trinity Episcopal Church in 1749, wrote of such a trip. After taking the road on the west Delaware, he crossed at Trenton (a town of 100 homes) by ferry, then booked passage in an "open wagon" for two shillings and a sixpence. Entrepreneurs in Trenton controlled road travel between New Brunswick and Philadelphia.

Kalm crossed the Raritan River at New Brunswick, then boarded a wagon on Woodbridge Avenue and rode to a Jersey City-New York ferry. The following year ferries from New Brunswick to New York replaced the wagon ride from New Brunswick to Jersey City and reduced the trip from two days to 12 hours.

A major influence on transportation in New Jersey, Colonel John Stevens was an inventor, financier and founder of Hoboken as a city. In 1807 Stevens contracted to build the *Phoenix*, a commercial steamboat, and launched it at Hoboken, to run between New York and New Brunswick. Stevens later launched a steam-powered freight ferry that ran between Hoboken and New York.

Despite these improvements in travel and freight movement, New Jerseyans needed other alternatives to get from one place to another. One of these was to try to fool Mother Nature and direct water around obstacles by creating a liquid road.

Canals

"Sunrise cuts through morning mist
Sunbeams slanting through oak and maple
Silently slicing the lavender curtain
Damp chill warms to a summer day
Shimmering in a watery mirror."

— Betty Redfield, *Poems of the D&R*, a Commemoration of the 25th Anniversary of the Delaware and Raritan Canal State Park.



Contrasting boats appeared in *Frank Leslie's Illustrated Newspaper* in 1885. On one boat the wife is tiller as her husband tends the children, while on the other boat well-dressed tourists pass by.

Canaller was a profession that sprang up throughout the East when more than 4,400 miles of canals were built between 1790 and 1860 to transport goods between rivers. They were expensive and required thousands of workers to plan, build, manage and work.

While public money was generally used to construct canals in other states, the corporations that built New Jersey's Delaware and Raritan (D&R) and Morris Canals were chartered by the state, similar to turnpikes. The D&R Canal Corporation sold stock to raise the necessary funds.

Harsh conditions for the Europeans abroad became a boon for the canal labor problem. The canal companies employed thousands of the newly arrived Irish immigrant men to dig ditches, wield pick-axes, push wheelbarrows, and work as carpenters, masons, wheelwrights and surveyors.

They also employed Irish women who worked along the canals to cook and clean and to run the boats. It solved the labor problem. But it had its downside too.

Those in the trenches were mostly Irish, with some German and Welsh immigrants, and local laborers. They worked from sunup to sundown for 50 cents to a dollar a day plus whiskey. In 1832 Asiatic cholera struck the canal workers. A hospital was quickly assembled inside the Princeton Town Hall. Although hospitalization stopped any further spread of the disease, it is estimated that hundreds of Irish immigrants lost their lives and were buried where they died.

Grave markers of the immigrant canal workers can be seen on Raven Rock Island in the Delaware River near Stockton and Bull's Island State Park.

Two major New Jersey canals were:

Morris Canal

Completed in 1831, the canal ran from Jersey City to Paterson and Newark. It is based on a British system of several inclined planes to avoid the need for a lot of locks. The canal rose and fell 1,674 feet in 90 miles and used a car as part of the system. A boat could rest on the car, slowly lower on tracks into the next level of the canal and avoid dropping less footage in several locks.

Delaware and Raritan (D&R) Canal

Completed in 1834, the D&R ran from the Delaware River to the Raritan River in the center of the state. The main channel was 43 miles long and 75 feet wide at the water line. Coal, clay, grain and other farm products were carried on this canal.



Transportation flourished in the 19th century with the development of a modernized steamboat and ferry. In 1807 **John Stevens** built a steamboat; in 1811 he established the first steam ferry from Hoboken to New York City.

Railroads

Water transportation, particularly canals, had competition from a form of land transportation that began in Hoboken in 1824.

Colonel John Stevens (see "Ferries") sought \$3,000 from the commissioners of the Erie Canal to prove that freight shipment could be less expensive per ton – 50 cents by railroad compared to \$3 by canal. In 1815 the New Jersey Legislature granted him the first railroad charter; in 1824 he constructed a 600-foot railroad in Castle Point, Hoboken.

The Legislature was faced with a dilemma in the 1829-30 session: both the canal and railroad lobbies requested charters. They solved the problem by granting one charter to the Camden and Amboy Railroad (C&ARR) and another to the Delaware and Raritan Banking Corporation. The two companies spanned the same



Railroad workers prepare for the trip from Camden to Atlantic City on the Camden and Atlantic Railroad. In July 1854 the first train carrying city dwellers left Camden for the refreshing beaches of Atlantic City, starting a trend that continued for many years.

territory and were in direct competition with each other.

In 1832 the two companies merged by legislative act, empowering them to approve the construction of any railroad between New York and Philadelphia.

Colonel John Stevens' son John was active in the railroad business. 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.

Young Stevens was also responsible for importing the John Bull, an English-made locomotive that debuted in Bordentown on the C&ARR tracks in November 1831. Railroads proved popular and several lines surfaced.

- 1831** Elizabeth and Somerville Railroad (Jersey Central)
- 1834** New Jersey Railroad and Transportation Company
- 1851** Belvidere Delaware Railroad
- 1852** Camden and Atlantic Railroad
- 1854** Morris and Essex Railroad
- 1871** Pennsylvania Railroad enters New Jersey

The railroad boom led to a manufacturing boom. In 1837 the Thomas Rogers plant in Paterson (Rogers, Ketchum & Grosener) manufactured the first steam locomotive in the United States. By 1850, they produced 100 locomotives a year.

Paterson was known as the stable of the railroad industry and by 1881, local manufacturers produced 5,871 locomotives.

Competition led to a landmark decision by the New Jersey Legislature in 1873 when the Pennsylvania Railroad had a monopoly on all rail travel between Philadelphia and New York. The law opened New Jersey to all railroads.

Travel by rail was well under way, but another form of transportation had its ups and downs.

Balloons

Ballooning, or air travel, was not commonplace in pre-20th century, although several people made attempts to popularize it.

- Frenchman Jean-Pierre Blanchard flew from Philadelphia to Woodbury in 46 minutes in 1793.
- Louis Charles Guille, also French, leaped from a balloon over Jersey City and safely landed with a parachute, the first jump in this country, in 1819.
- Charles Ferson Durant of Jersey City became the first professional balloonist in this country in 1830.
- The military used the balloon for observation flights during the Civil War.

Bicycles

The bicycle entered the American scene in the late 1800s, creating another demand for good roads. Colonel Albert Pope was the “father” of the bicycle that he manufactured in his Hartford, CT plant. He also formed the national League of American Wheelmen in 1880, which subsequently began the Good Roads Movement, a group who campaigned nationally for road improvements.

The first all-metal two wheel bicycle appeared in 1870 with solid rubber tires and long spokes on the large front wheel. One would purchase a wheel as large as leg length would allow.



General Roy Stone of New York became head of the Office of Road Inquiry (ORI) of the Department of Agriculture, forerunner of the Federal Highway Administration, whose mandate was to provide information on road improvement. Assigning the nation's roads to an agricultural agency signified the federal acceptance that rural roads needed improvement more than city streets.

State legislation

New Jersey's Legislature established a \$75,000 fund in the state Department of Agriculture to help the counties in the construction of highways to the extent of one-third of their cost in the 1890s. It was the first state in the nation to make a move toward better funded transportation.

The Legislature followed through and allowed the appointment of a State Commissioner of Public Roads in 1894, separate from the Secretary of Agriculture. Edward Burrough, former president of the State Board of Agriculture responsible for the State Road Aid Law, became the first Commissioner.

As the 19th century ended, Henry I. Budd succeeded Burrough as Commissioner of Public Roads. These commissioners had their work cut out for them with the advent of the automobile.

Motorized vehicles

Worldwide technology of the 1880s focused on getting people and goods where they had to go in their own vehicles, forerunners to today's automobiles. Travelers, especially Americans, developed an emotional attachment to this new invention, probably more so than they did to the electric light invented by Thomas Edison in 1879 or the mechanical refrigerator that was developed in the early 20th century.

The other side of the coin was that motorized vehicles required more and better roads, a real challenge for the State Highway Commission.

“It was man who designed the canoe, the sailboat, the wagon, the locomotive, the airplane, but it was nature which decided the routes they would follow.”

— Wheaton J. Lane, *From Indian Trail to Iron Horse*

The 20th Century

Starting up

At the dawn of the 20th century, New Jersey's population had grown to 1,883,660 in 1900 from 373,306 in 1840. Many new citizens came from other countries. Our nation's foreign-born population expanded from 2.2 million in 1850 to 14.2 million in 1930. In 1860 the foreign-born population was chiefly from Ireland, the German states and England. Others arrived from France, Scotland, Switzerland, Wales, Norway, China and Holland.

From 1890 to 1910 immigration from Southern and Eastern Europe to the United States also burgeoned. In its August 1999 report "Overview of INS History," the U.S. Immigration and Naturalization Service reported increases from Greece – 1,887 to 101,282; from Italy – 182,580 to 1,343,125; from Hungary – 62,435 to 495,609; from Poland – 147,440 to 937,884.

Total	U.S. Population	Total Foreign Population
1890	62,622,250	9,249,547
1910	91,972,266	13,515,886

U.S. Census Bureau, *Nativity of the Population and Place of Birth of the Native Population: 1850 to 1990*.

By 1900 the annexation of Hawaii and acquisition of Puerto Rico, Guam and the Philippines in 1892, American Samoa in 1900, the Panama Canal Zone in 1903 and the purchase of the Virgin islands in 1916 further diversified the ethnic base of the nation.

The U.S. Census Bureau in its March 1999 report, *Nativity of the Population for Regions, Divisions and States, 1850 to 1990*, showed New Jersey's foreign population at 328,975 or 22.8 percent of the state's total population of 1,444,933 in 1890. They also reported the foreign population at 660,677 or 26 percent of the state's total population of 2,537,167 in 1910.

New Jersey was a magnet for newcomers seeking social, religious and economic freedoms and opportunities for work. These immigrants brought talents, inventions and innovations that enhanced the development of the state. And members of the different ethnic groups that settled in New Jersey contributed to the transportation challenges of this new and exciting era. The best was yet to come.

THE 15 ORIGINAL STATE HIGHWAYS

ROUTE	DESCRIPTION
1	Elizabeth to Trenton, by way of Rahway, Metuchen, New Brunswick and Hightstown.
2	Trenton to Camden, by way of Bordentown, Fieldsboro, Roebling and Burlington.
3	Camden to Absecon, by way of Berlin and Hammonton.
4	Route No. 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.
5	Newark to the bridge crossing the Delaware River about two miles above Delaware, by way of Morristown, Dover, Netcong, Budd's Lake, Hackettstown, Buttsville and Delaware.
6	Camden to Bridgeton and Salem, by way of Woodbury, Mullica Hill, Woodstown and Pole Tavern.
7	Hightstown to Asbury Park, by way of Freehold, Jerseyville and Hamilton.
8	Montclair to state line at Unionville, by way of Singac, Wayne, Pompton Plains, Butler, New Foundland, Stockholm, Franklin Furnace and Sussex.
9	Elizabeth to Phillipsburg, by way of Westfield, Plainfield, Bound Brook, Somerville, White House, Clinton, West Portal and Bloomsbury.
10	Paterson to Fort Lee Ferry, by way of Dundee Lake and Hackensack.
11	Newark to Paterson, by way of Belleville, Bloomfield, Nutley and Passaic.
12	Paterson to Phillipsburg, by way of Little Falls, Pine Brook, Parsippany, Denville then over Route No. 5 to Budd's Lake, then to Washington and Broadway.
13	New Brunswick to Trenton, by way of Kingston, Princeton and Lawrenceville.
14	Egg Harbor City to Cape May City, by way of Mays Landing, Tuckahoe and Cape May Court House.
15	Bridgeton to Cape May Court House, or such other point on Route No. 14 as may be determined by the State Highway Commission.

"When the Department started the highway effort in 1917, it figured 15 highways would do it for the entire state ... laid out a network of highways that basically are still there today in updated versions."

John Summers, Director of Central Services, 1979

Some hallmarks of the first two decades of the century, which set the tone for future modes of travel, included:

1891 **State Road Aid Law (administered by the State Board of Agriculture)**
1894 **Commissioner of Public Roads**
1903 **Public Service Corporation**

This company provided gas and electric services to the general public and electric power for street railways or trolleys. The passenger trolleys basically replaced the horse-drawn street cars. For example, Newark's No. 1 line ran up Market Street and Springfield Avenue. In 1907 the Public Service Railway Company assumed all trolley-related activities.

1906 **Division of Motor Vehicles**

Before 1906, 13,000 unlicensed New Jersey motorists drove their vehicles without license plates wherever they pleased at any speed they wished. As the number of drivers and cars increased and the need for some type of regulation was evident, the Legislature established the Division of Motor Vehicles as part of the Secretary of State's Office. Its mandate was to administer the laws of safe driving.

New York and New Jersey Commission

The two states agreed to investigate the feasibility of building a bridge from New Jersey to New York and to promote crossing the waterways between the two states.

1909 **State Highway Commission**

Recognizing the need for a better road system, the New Jersey Legislature took a significant step toward that goal with the creation of this Commission in 1909.

Other steps were:

1912 The Legislature directed the Commission to establish a comprehensive scheme of roads known as the state highway system not to exceed 1,500 miles. New Jersey built its first concrete roadway in New Village in Warren County.

1913 The commission opted for a tunnel from Jersey City to lower Manhattan.
1917 The tunnel idea was ratified on the New Jersey side when the greatest traffic tie-up in the state's history happened during World War I. With minimal manpower, the worst winter in history and a German U-boat campaign against commercial shipping, 180,000 railroad cars with their cargo on board sat in New York harbor waiting for unloading. The shipping piers were located in New York and the railroads located in New Jersey. Although cargo was unloaded onto railroad lighters or trucks for delivery to New Jersey's classification yards, a food and coal shortage resulted in northern New Jersey.

State Highway Department

The legislature created the State Highway Department, governed by the State Highway Commission's eight members, two of whom were required to be qualified and competent engineers. The governor was a member ex-officio, and would appoint the members with the advice and consent of the Senate. The Legislature designated 15 routes as the state's highway system.

1919

Delaware River Bridge Joint Commission

Created in 1919, the commission was an example of cooperation between legislative leaders from Pennsylvania and New Jersey. Pennsylvania's Governor William Sproul was chairman and New Jersey's Richard T. Collings, known as the "Father of the Delaware River Bridge," was vice chairman. The commission's first order of business was approval of the Benjamin Franklin Bridge construction to connect Philadelphia and Camden. When completed, it was the longest suspension bridge in the world.

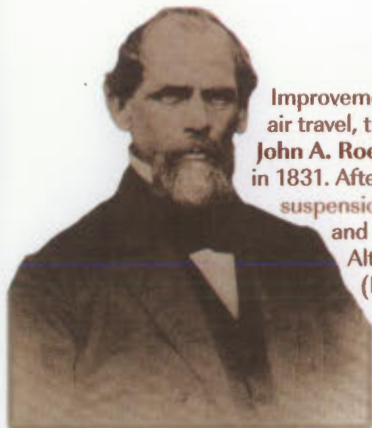
1927

The Holland Tunnel was completed

The Holland Tunnel was the world's first mechanically ventilated underwater vehicular tunnel. The solution to producing pure air in the tunnel was found by Norwegian immigrant Ole Singstad, who later replaced Clifford Holland as Chief Engineer. Fresh air is supplied to the tunnel every 90 seconds by 42 intake and 42 exhaust fans of 6,000 horsepower.



Chief Engineer on the Hudson River Vehicular Tunnel Project, **Clifford Holland**, died in 1927 at the age of 36 on the day before workers from New York and New Jersey were scheduled to meet in the mid-section of the completed tunnel.



Improvements in technology brought advances in bridges, air travel, trains and shipping. Roadway Engineer **John A. Roebling** emigrated to Pittsburgh, PA from Prussia in 1831. After developing and refining wire rope for railroad suspension bridges in Pennsylvania, Roebling moved to Trenton and founded a manufacturing facility for wire rope. Although chosen as chief engineer for the Brooklyn Bridge (New York) project, Roebling died before its completion. The Roebling Company's Bridge Division under the direction of his son Washington completed the project and later built the George Washington Bridge.

1910 **Pennsylvania Railroad**

This railroad electrified its Manhattan to Newark line in 1910. Freight volumes increased and trains hauled more than 410 billion ton-miles in 1920. The railroad expanded its tracks from two to four across New Jersey into New York, in direct competition with canals.

1913 **Bridge Division, State Highway Department**

The Legislature created this unit in 1913. The same year plans for the construction of the George Washington Bridge from New Jersey to New York were drawn up. Ferries operated, but declined steadily as bridges were being built.

1912 **Flying Exhibitions and mail service**

Temporary airmail service was instituted from Bayonne to Perth Amboy, Ocean City and Stone Harbor.

1913 The Legislature passed flying exhibition regulations in 1913. Richard Brookins appeared at the Atlantic City Air Carnival and set a record flying a Wright biplane to an altitude of 6,176 feet. The Wright Company in Paterson was the first to manufacture aircraft in the nation.



Swiss engineer **Othmar Ammann** emigrated to the United States in 1904. He designed the George Washington, Verrazzano Narrows and Bayonne bridges. He was Director of Engineering at the Port of New York Authority from 1925-1939.

1918 Full-time airmail service from Curtiss Field, Long Island to East Potomac Park, Washington, D.C. used Hadley Field in South Plainfield as an alternate landing site.

1915 **Port Newark**

Opened in 1915, it was built by converting marshlands next to Newark Bay into a port capable of handling ocean-going vessels. More than 10,000 people at the official opening marveled at two miles of railroad track on Port Street, a 20-foot channel and bulkheads to retain the land.



The first ship to unload its cargo at Port Newark was the *A.J. West*, a schooner that carried mahogany from Manila.

1916 **Jitneys**

Passed by the Legislature in 1916, the Kates Act governed jitney operations for transport of as many as seven passengers. The forerunner of the motor bus, the jitney replaced the trolley during the Trolley Strike of 1919.

Solving problems

The year was 1922 and New Jersey had two transportation problems, driver and vehicle safety and traffic management.

Safety

More roads, bridges and tunnels meant more drivers and vehicles. As the number of drivers increased, the incidence of violators, including drunken drivers on the roadways increased.

The popular automobile numbered more than 500,000 registered vehicles and traffic jams and accidents rose.

The first Division of Motor Vehicles commissioner was J.B.R. Smith, who had eight employees, a chief inspector and seven assistants. Three employees received \$3 daily through December 1 and resumed work in the spring; the others were volunteers. They required each vehicle owner to supply a license plate which was homemade – often leather or wood – and a declaration of his/her driving competence.

The Division later refined this inadequate system and introduced: driver examinations (1913), the New Jersey Uniform Traffic Laws to replace local motor vehicle laws (1914), and standardized license plates to be manufactured by state prisons and required for every vehicle (1915).

Although there were several laws on the books, more supplements to current statutes were needed to protect the public, including:

- 1921** Operating Motor Vehicles While Under the Influence of Intoxicants (throwing) Injurious Substances on Highway
- 1922** Lamps (required) on Animal-drawn Vehicles
- 1923** Full Stop (required) at Grade Crossings
- 1924** Driving Overweight Vehicles on Intrastate and Interstate Bridges

In 1926, the Legislature spun off Motor Vehicles – a great revenue producer for the state – from the Secretary of State's office into a separate department.

New Jersey's early 20th century urban traffic moves among pedestrians.



In 1906 vehicle owners produced their own license plates such as this leather one with metal numbers. It was the first year that New Jersey assigned license plate numbers.



Traffic Management

The second problem was traffic. New Jersey's 120 miles of popular shore resorts, flourishing manufacturing and agriculture and geographical position between Philadelphia and New York City made it a prime candidate for heavy truck, bus and commuter traffic.



This is an early photograph of the Brunswick Circle in Trenton. Credit for most of the state's traffic circles goes to **Harold W. Giffin**, an engineer with the New Jersey State Highway Department in the 1920s and 1930s. Giffin wrote that he foresaw a time when circles would outlive their practicality.

The Bond Issue of 1922 that provided \$40 million for 726 miles of additional roadways over five years was gone in four. New legislation provided for about 1,500 additional miles of roadway. Unfortunately, there weren't any funds to match this provision.

New Jersey suffered two kinds of traffic: local, within a municipality or subdivision; and through, moving from one municipality to another, in or out of state.

The state attempted to curtail the through traffic patterns in heavily trafficked areas. One was the creation of a circle. To calm the traffic flow, the state constructed an island inside an intersection, around which traffic could circulate. This new configuration opened in Camden in 1925. By its design the circle lowered speed by forcing through-traveling vehicles to change their travel path around the island.

In their prime, New Jersey's 75 traffic circles offered a practical method of allowing traffic from several directions to cross paths relatively safely without always being forced to stop.

Solutions

On February 8, 1926 the Senate passed a resolution that moved forward transportation development in the state: "Be it resolved, that the State Highway Commission be requested to study the highway problems of the state and suggest a more comprehensive system, classifying same as primary and secondary roads, and give approximate estimated costs of constructing each of said roads that has not been constructed."

The Commission – down from eight to four members – now had an additional burden: to provide safe roads and minimize delays and dangers.

The State Highway Commission released a November 1926 report by State Highway Engineer W. G. Sloan requiring several new main and secondary roadways, and outlining funding for the new set of highways. This study was a landmark in planning for projects, in coordinating New Jersey's transportation needs with funding.

With the start of construction on the Holland Tunnel, more bridge openings and the increased use of automobiles, New Jersey needed more roads. The traffic jams were more frequent and the Commission intended to eliminate the major causes and take steps to eliminate some of the problems:

- unscramble through and local traffic at congested centers,
- ban highway parking between eight o'clock on Sunday morning and ten o'clock Sunday evening,
- eliminate and construct highways without intersections, grade crossings, trolley tracks and drawbridges, and
- separate through and local traffic.

Sloan determined that the two major traffic problems were in the inter-city and seashore traffic routes. The comprehensive system, if constructed properly, would survive years. The total mileage of these routes would be 128 miles in the metropolitan terminal area, 13 miles in the Camden area and 27 miles in the Trenton area. Outside these areas, he estimated 1,071 miles total were needed.

By sharing costs, Sloan maintained that with continued federal aid, annual expenditures would average no more than the current yearly costs, based on projected gasoline taxes, federal aid and motor vehicle revenues.

Estimates included \$33 million for secondary routes; the counties would pay one-third of the local road costs. Railroads would contribute \$5 million for grade crossing elimination. Bridges and right of way costs were additional. Once the decision was made, the state's transportation system took off.

Bridge and tunnel building boomed. The styles of the bridges varied. For example, the Victory Bridge over the



Assemblywoman Lila W. (Robbins) Thompson of New Egypt was a member of the State Highways Committee during her two terms as a member of the Legislature, from 1924-25. The descendant of a New Jersey "first" family, who settled in Woodbridge (Middlesex County) in 1670, also served as State Legislative chairman and member of the State Executive Board. Thompson is remembered for her efforts to improve transportation in the state and to extend the state highway system. On January 15, 1934 the Legislature renamed a portion of Route 9 from Adelphia in Monmouth County to Lakewood in Ocean County "Lila W. Thompson Highway."

Raritan River between Perth Amboy and South Amboy is a movable bridge that opens for marine traffic. Dedicated in 1926 as the Victory Bridge in honor of those men and women from New Jersey who served in World War I, it was only a partial solution to the summer traffic problem. Serious congestion occurred within four years of its completion.

The Morris Goodkind Memorial Bridge (originally the College Bridge) is a multi-span concrete arch fixed bridge carrying Route 1 over the Raritan River in New Brunswick. Designed by NJDOT General Supervisor of Bridges Morris Goodkind for whom it was later named, the structure opened in 1929.

The public preferred fixed bridges (those that don't open) because they eliminated some traffic tie-ups. Some of those bridges built at this time were:

- 1928** Outerbridge Crossing from Perth Amboy to Tottenville, Staten Island, named to honor Eugenius H. Outerbridge, the first Chairman of the Port Authority of New York and New Jersey. The Port Authority of New York and New Jersey is doing a \$52.9 million renovation of the first bridge constructed by that agency, to be completed in June 2002.
- 1928** Goethals Bridge from Elizabeth, to Howland Hook, Staten Island, named to honor George Goethals, builder of the Panama Canal.
- 1931** Bayonne Bridge, a prize-winning 1,675-foot steel arch bridge that spans the Kill Van Kull from Bayonne to Port Richmond, Staten Island, was designed by Othmar Ammann.
- 1932** Pulaski Skyway, originally called the Diagonal Highway, is a cantilever and truss bridge with a 135-foot clearance at the center above the water. The center height was required to allow ships to pass under the bridge. It has been designated a civil engineering landmark.
- 1939** Edison Bridge was the largest, highest and longest span bridge of its type in the United States when completed. With a height of 135 feet and a four-lane, 52-foot wide roadway on Route 9, the structure was built about 3,000 feet upstream of the Victory Bridge. It was called the "Route 35 extension from the Woodbridge cloverleaf to Keyport."



Recipient of the Phoebe Hobson Fowler Medal, given by the American Society of Civil Engineers, **Morris Goodkind** (fourth from left) also won honors for his designs of the Edison Bridge, the Oceanic Bridge over the Navesink River, the Passaic River Bridge between Newark and Kearny, the Atlantic City Absecon Boulevard Bridge and the Cheesequake Creek Bridge on Route 35 between Sayreville and Madison Township.

NJDOT has three major projects under way in this area through 2004:

- construction of a new Victory Bridge
- rehabilitation of the current Edison Bridge
- elimination of the Victory Circle and a grade separated interchange that leads to the bridges.

NJDOT Engineer **Sigvald Johannesson** designed the Pulaski Skyway; **Jakob Baur** and **H. W. Hudson** engineered the building of the span. Johannesson combined traffic projections and economic factors to evaluate roadway improvement alternatives. In the case of the Pulaski Skyway which was dedicated in October 1933, the design enhanced traffic flow from Newark to Jersey City and reduced transportation costs. Workers on the bridge included the Kahnawake Mohawks, steelworkers from the St. Lawrence area in Canada, who are famous for their agility on high spans.



Innovations

With the completion of the Pulaski Skyway, the last link of the Route 1 & 9 corridor was completed. The Department constructed Route 1 & 9 with a strengthened highway surface to support a steady flow of large trucks with rubber tires.

The road also provided access to the Holland Tunnel. It kept traffic moving continuously in the heavily-traveled northern New Jersey area. Engineers kept grade crossings at a minimum, with all connections with major highways made via ramps entering and leaving in the direction of traffic.

Accidents occurred frequently on the state's roads. The Division of Motor Vehicles attempted to institute vehicle inspection of the state's 765,000 motor vehicles in 1928 to promote safer travel. The inspection system failed and the state looked to gain road innovations for safety.

During the later 1920s and 1930s, the State Highway Department used methods and technologies to improve the flow of the growing volume of traffic through intersection design and signs. Some of these were:

Wider highways

Roads were expanded to three lanes, a New Jersey first.

Jughandles and grade separations

The nation's first cloverleaf, partial cloverleaves and flared intersections complemented circles.

Signs

"Silent policemen" provided some order to traffic movement at busy intersections.

Divided highways

The Department constructed the first divided highway on Route 1 in Elizabeth in 1936. Highway engineers noticed that the worst accidents occurred when two "streams" of traffic crossed each other. To enhance safety, engineers developed a number of grade separations to help reduce accidents.

To limit distractions on its roadways, New Jersey curtailed the use of a new method of advertising – billboards. With the rapid growth of the automobile the billboard advertisers saw a market in posting signs along the roads. Mail Pouch Tobacco used the sides of barns; Burma Shave sent messages in a series of roadside signs. Because the signs disturbed the landscape and distracted the drivers, the state set limits on the number and size of the signs.

By the 1930s New Jersey achieved a national reputation for its enterprise and excellence in the transportation area. Others copied its highways, bridges and intersections. Still others marveled at its innovations in rail and air travel.

Early Aviation

Some of the milestones in this period included:

1927 Air express service began at Hadley Airport and had two international air services. One route transported passengers and mail to Montreal, Canada and the other carried mail to Mexico City, Mexico. In 1929 air mail service began at the newly opened Newark Airport.

1929 The Legislature adopted the Uniform Aeronautics Act to establish regulatory standards for aviation.

1931 The Legislature created the State Department of Aviation, the office of the State Director of Aviation and the State Aviation Commission.



Airport visitors at the newly-opened Newark Airport in 1929.

Amelia Earhart

An accomplished aviator and an advocate for women pilots, **Amelia Earhart** successfully flew solo across the Atlantic – the only other person since Charles Lindbergh to accomplish that goal and in the shortest time. Earhart organized a cross-country air race for women pilots in 1929, the Los Angeles to Cleveland Women's Air Derby, named the "Powder Puff Derby" and founded the "Ninety-nines," a women's pilot organization. Amelia Earhart flew nonstop from Los Angeles to Newark Airport. Other aviators who utilized the airport's facilities at this time were Charles Lindbergh, Eddie Rickenbacker, Howard Hughes, Clarence Chamberlin, Brent Balchen and James Doolittle.



Rail travel

1930 to 1935 The Lackawanna Railroad electrified its train facilities from Hoboken to Morristown. The Pennsylvania Railroad electrified its rail service from New York to Trenton in 1933 and Washington, D.C. in 1935.

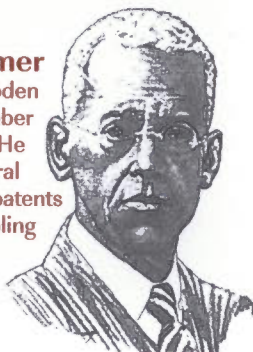


Thomas A. Edison

Born in Ohio and raised in Michigan, **Thomas A. Edison** (center) moved to New York City, then opened laboratories in Newark and Menlo Park. In 1879 he invented the light bulb. Phonograph records and power plant supplies followed. In 1884 he introduced the central generation of electric light and heat, which soon propelled New Jersey into a major manufacturing state. The general use of electricity also eliminated steam as the major source of railroad power. His company, the Edison General Electric Corporation, later became the General Electric Corporation. In 1928 Edison received the Congressional Gold Medal for his inventions.

Lewis Howard Latimer

Inventor of an inexpensive carbon filament and a threaded wooden socket for light bulbs, **Latimer** was the only African American member of the Engineering Division of Thomas A. Edison's company. He conducted research on electrical lighting and published several technical books on the subject for engineers. Latimer held several patents including a water closet for railway cars and an apparatus for cooling and disinfecting.



State highway expenditures reached a peak in the early 1930s as the State Highway Commission built many new routes and dual highways became the standard. Highways became a major subject in the legislature during the 1920-1940 period of highway expansion. Then, in 1935, highway management and administration was empowered even further when the four commissioners were succeeded by a single, more powerful highway commissioner, reporting directly to the governor.

The war years

In the 1930s the nation suffered through the Great Depression. In the 1940s it suffered through the costliest war in history. In those difficult and uncertain years commerce and the traveling convenience of the average citizen were not the primary goals of the interstate highways. The highways had their roots in the concern for national defense.

During World War II

When America entered World War II, President Franklin Delano Roosevelt's administration discontinued all non-federal aid road programs, except those for national defense. This mandate decreased construction activity in New Jersey. The state's war-time efforts focused on creating, improving and maintaining access roads for military installations such as Fort Dix, Picatinny Arsenal, Bayonne Naval Dry Dock and Supply Base, Fort Monmouth and Fort Hancock.

"Soon after the war, the work load began to outpace the size of the Department," remarked retired Central Services Director John Summers. "Separate entities were formed. The Turnpike Authority, for one, was established, and took over what had been designated and started as Route 100 (which became the New Jersey Turnpike). At about the same time, the Garden State Parkway (Route 4) got started. It also became a separate authority under the jurisdiction of the State Highway Commission.

"The first three interstate routes constructed – Routes 78, 80 and 95 – were called 1, 2 and 3. Then, the state adopted other routes to become belt routes, or beltway support routes around major metropolitan areas Routes 295 and 287."

The state was allowed to use its federal 50-50 funding for the construction of the routes, not a substantial amount of money.

"Some of the interstates were designed and built in the midst of lively debate about rights of way and most appropriate routes," said Acting Commissioner Russ Mullen.

"But the interstate system was built pretty much as it was originally planned. If you look at the map of the completed interstate system compared to the map of the system that was proposed more than 50 years ago, of that which is built, 80 to 90 percent of it was built where it was proposed to be built in the first place – after all the arguments and debates. That is a testament to the care with which the department's original planning (the 1926 W.G. Sloan study) was done before World War II."

Funding milestones during and after the war included:

1941 Defense Highway Bill

Passed by Congress to correct critical deficiencies in highways and bridges "essential to national defense," the bill included funds for road construction to defense sites. Congress recognized that the wartime delay in the construction of transportation projects would result in a major backlog after the war and a potential transportation crisis. Therefore, the federal government provided funds in the same bill to support extensive survey and planning projects. States later used the resulting plans as the basis for implementing expanded post-war highway programs. The federal government encouraged highway departments to secure rights of way large enough to permit future widening and to construct bridges which could easily be enlarged.

1944 Federal Aid Program

This was passed by Congress to develop the National System of Interstate and Defense Highways, to supplement existing primary (trunk lines) and secondary (feeder route) programs and set the tone for post-war highway development.

1947 Aid to Local Governments

Designed by the state after the war to provide financial aid to counties and municipalities, the funds are distributed mainly under legislated formulas reflecting area, road mileage and population each calendar year. They are used for such varied purposes as construction, reconstruction, maintenance and repair, lighting and policing of roads and bridges. Local governments may also apply limited amounts for debt service on road and bridge bonds.

1956 Federal Interstate Highway Act

Legislation created the national "highway trust fund" with a budget of \$25 million to hold additional monies from national taxes on fuel and tires. In the mid-1950s, the federal government had primary responsibility for financing the interstate system. It provided 90 percent of construction costs.

"Prior to the interstate system this Department did all of its engineering and construction with its own forces with the exception of a very few highly complicated projects where knowledge did not exist ... like moveable bridges. ... For the first time in history we hired consulting firms to become an extension of our staff in order to deal with the huge increase in design and construction ..."

Jack Freidenrich
Chief Engineer,
Assistant Commissioner for
Engineering and Operations
(1949-1988)



Interstates

The maximum mileage of the interstate system nationally was to total 40,000 miles and most states had their routes designated on paper by 1955. While the system was to consist of only about 1.1 percent of all rural roads, it was designed to carry 20 percent of all rural traffic. It was to connect all state capitals and most cities with populations of at least 50,000.

The interstates offered a national network of major highways – New Jersey interstates include 78, 80, 95, 195, 280, 287 and 295 – to provide these benefits:

- national defense
- reduced cost of transporting goods
- clean, wide, safe, inexpensive highways for tourists.

A major portion of post-war highway planning and construction had been devoted to develop more than 415 miles of the newest, most modern freeways that would comprise New Jersey's part of the huge 42,500-mile National System of Interstate and Defense Highways.

Lincoln Tunnel

Before the war, the Port Authority of New York and New Jersey took over administration of the Holland Tunnel and began construction of a three-tube tunnel called the Lincoln Tunnel to connect Routes 1 and 9 in New Jersey with Manhattan. Ole Singstad was an engineer on the Holland Tunnel construction who oversaw construction of the new tunnel with Chief Engineer Othmar Ammann.

Construction on the center tube started on May 17, 1934 and was completed on December 11, 1937. The other tubes opened in 1945 and 1957.

Garden State Parkway

Unlike the New Jersey Turnpike, the Garden State Parkway is a barrier toll road. Although the toll barriers are seen by some as undermining speedy transportation, there is simplicity in the fact that everyone is charged the same amount.

Started in 1947, only 19 miles had been completed by the State Highway Department due to limited appropriations. Then the legislature created the New Jersey Highway Authority in 1952, to take over construction, operation and maintenance of the proposed Route 4 Parkway. The entire length of the originally planned 164-mile main route, from Paramus to Cape May, was opened in 1955 as the Garden State Parkway.

Over the years some widening has increased the number of lanes, but very few additions have been made.

The concrete Jersey barrier used on the NJ Turnpike and other major roadways was only 18 inches tall when it was first installed in 1955. In 1959 NJDOT increased the height to 32 inches, with the first 10 inches from the pavement rising at a 55-degree angle and the remainder at an 84-degree angle. This protective wall can redirect vehicles upon impact. It weighs 600 pounds per linear foot.



The four-lane turnpike opened with a dedication ceremony and ribbon cutting on November 30, 1951, although the final nine-mile link to the George Washington Bridge was opened in January 1952.

New Jersey Turnpike

Plans for a state-long Route 100 superhighway showed a 12-lane road that included two express lanes to lead travelers from the northern end of the state to the southern tip. It was the perfect plan for the most densely populated state, with more miles of paved road per capita than any other state in the nation.

In their 1989 book *Looking for America on the New Jersey Turnpike*, Rutgers University Professors Angus Kress Gillespie and Michael Aaron Rockland offer information and insight about the turnpike. "The roadway was utterly straight and boring and bleak, but it was somehow magnificent," they wrote. "It conveyed an image of strength and permanence and stability."

The turnpike has inspired artists and songwriters, filmmakers, novelists and poets. They see the 142-mile turnpike surrounded by refineries, industries, railways, an international airport and swamps as a powerful symbol of life in America in the second half of the 20th century.

To view it as characteristic of New Jersey is to get a distorted vision of the state. There is a tendency, by visitors especially, to see New Jersey as a place of unrelieved industry. Traveling along the pike, one is not often aware of the panoramas of pretty countryside, fine beaches, charming colonial towns, productive farmland and the largest deer population in the United States.

If the turnpike had a father, he was Alfred E. Driscoll, Governor from 1947 to 1954. He launched his plan for the turnpike in his first inaugural address to the legislature in 1947. For Driscoll, nothing was more important than the turnpike.

"It was obvious that U.S. Route 1 just couldn't handle the anticipated traffic and that we needed a new artery and we didn't have the money to build a free highway, and so we proposed a toll road," he said.

His plan was to create an independent authority to issue bonds and charge tolls to pay them off. The state would have a turnpike; riders would cover the costs.

On its completion, Driscoll said, "... motorists can now see the beauty of the real New Jersey."

Sometimes described as the "Vital Corridor," the turnpike cuts across the waist of New Jersey, from the Hudson to the Delaware Rivers. With the great ports of New York and Philadelphia on either end, New Jersey's destiny as a corridor state unfolded. The designated speed for the southern section, below the Raritan River, was 75 miles per hour. For the northern section, it was 60-70 miles per hour. The average motorist could drive on this "miracle road" from the Delaware Memorial Bridge and continue through the marshlands of Salem County, going faster than a mile a minute – an entirely new driving experience.

The need to sell bonds to pay for the road was not questioned. At the time, the \$225 million worth of 35-year bonds was the largest bond issue ever for a toll highway. The promoters justified the price, saying it would pay for itself in 25 to 35 years. This was just a prediction; no one was sure the roadway's income was going to be sufficient.

Before the opening of the turnpike, the authority's new public information office prepared press releases and media campaigns to maximize traffic quickly. Although the turnpike became more profitable than its designers ever dreamed, the profits did not pay off the bonds and close the tollbooths. Instead, improvements and maintenance resulted in additional bond issues and continued tolls.

More authorities

In 1956 the Delaware River Port Authority (DRPA) decided on names for the Delaware River suspension bridge and the new bridge under construction between New Jersey and Philadelphia. They decided to rename the existing bridge the Benjamin Franklin Bridge and the new bridge, the Walt Whitman Bridge, named for Camden's "Good Grey Poet."

New Jersey Governor Robert B. Meyner and Pennsylvania Auditor General Charles C. Smith opened the Walt Whitman Bridge on May 15, 1957. This new connection had a major impact on the Delaware Valley on both sides of the river, including the development of the Atlantic City Expressway.

Created by the Legislature in 1962, the New Jersey Expressway Authority was the third road-building authority in the state. The 44-mile roadway that connects Philadelphia with southern New Jersey and terminates at Atlantic City opened in 1965. It is supported by two barrier toll plazas. The Authority is completely self-supporting and no state tax monies are used.



Walt Whitman, poet and Camden resident

The end of the Highway Department

Dwight R.G. Palmer became the last Highway Department Commissioner when he was 68 years old. His administration left the Department some of its most colorful anecdotes. Although Palmer banned office holiday parties, he provided and paid for festivities for the children of Department employees. Palmer never submitted an expense account, paid his own office telephone bill and drove his own car from his home in Short Hills to Trenton every day.

He installed a bell system in corridors to signal the end of the work day; instituted the dispensary and visiting nurse service; established security measures; and recruited professional employees on college campuses.

Palmer, who died in 1990 at age 93 and worked until he was 80, set a mandatory retirement of 70 years at the Department.

His 12-year service as Commissioner saw these transportation initiatives:

- agreement for the Port Authority of New York and New Jersey's full payment of Interstate Routes 80 and 95 in Bergen County.
- agreement with the Bureau of Public Roads to accept the Essex East-West Freeway as Interstate Route 280. The New Jersey Highway Authority agreed to pay for the additional cost of constructing the freeway as a depressed route and also agreed to pay for a massive interchange with the Garden State Parkway.
- creation of intermodal transportation in Camden to redirect freight routes and to demolish (paid for by the Bureau of Public Roads) a 'Chinese Wall' railroad embankment in Camden. The material was used as fill for Interstate Route 76 and the land was used for the Lindenwold High Speed Line.
- agreement by the Port Authority of New York for the rail lines (PATH) between northern New Jersey and New York City, to rehabilitate them, subsidize their operation and build a transportation center in Jersey City. This gave the World Trade Center a New York City address.
- construction of part of the Route 42 Freeway, which made possible the later construction of the Atlantic City Expressway.
- development of a post-war plan for highways in New Jersey.

The Department's vacated laboratory building became eligible for designation in the New Jersey and National Register of Historic Places in 1998 based on the application submitted by NJDOT's **Brian Mulcahy** of Project Support and Engineering. From 1935 to 1997 the laboratory was the site of continuous testing and research of road materials such as coarse and fine aggregates, asphalt and concrete mixes and steel re-bar. Lab employees also tested for paint, epoxy, geotextile fabrics, the potential use of recycled materials in roadway mixes, and for the development and testing of the concrete barrier curb.



Retired secretary **Helen Ciba** stands before the pictures of the Department's commissioners, including the 11 whom she served during her 38-year career.

Betty Greitzer stands near a memorial plaque dedicating a beech tree to her father, the late **Milton S. Greitzer**, former head of Construction and Maintenance. The memorial was the idea of Security Guard **Dominick Migliaccio**, who approached **George Lobman**, Construction and Maintenance, for assistance. He formed a committee to raise money and obtained permission for the project. Serving on the committee were **George Gramlich** and **Joseph Szucsik** of Construction and Maintenance and **Michael Hanlon** of Central Services.



Multimodal Transportation – NJDOT begins a new era

New Jersey anticipated the new U.S. Department of Transportation by four months when the Legislature created the NJDOT in 1966. Integrating all modes of transportation into an efficient network was now the official order of business in the nation. David I. Goldberg became the first NJDOT Commissioner.

“Commissioner Goldberg should be remembered primarily for the 1964 Bond Issue, which was the first time the Department had a bond issue in more than 30 years,” said former Acting Commissioner Russell Mullen. “And he is especially to be congratulated for the fact that he provided in the referendum that none of that bond issue could be used to match federal aid. That meant that the legislature had to keep on appropriating the matching money. They weren’t off the hook.”

Under the Transportation Act that established NJDOT, the responsibilities that Goldberg and his successors faced were to:

- develop and maintain a comprehensive master plan for transportation development.
- develop and promote programs to foster efficient and economical public transportation services in the state.
- prepare plans for preservation and improvement of the commuter railroad system.
- develop plans for more efficient public transportation service by bus operators and facilitate more effective coordination between bus services and other forms of public transportation, particularly the commuter railroads.
- 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.
- absorb the functions of the Bureau of Aeronautics (transferred from the Department of Conservation and Economic Development).

Redoing public transit

Passenger railroads

A significant effort in the 1960s was the plan to consolidate passenger railroads. Called the Aldene Plan after a rail junction in Cranford, it went into effect in April 1967 with the following results:

- Jersey Central’s terminals in Jersey and Newark were abandoned
- tracks and signals were improved
- a new passenger station was provided
- a terminal and storage yards were installed
- \$1.5 million annually was saved.

When the Penn Central Railroad and smaller railroads serving New Jersey declared bankruptcy, the federal government intervened and Conrail was established. The Bureau of Ports, Terminals and Freight Services was formed to oversee federal programs designed to mitigate the impacts of railroad reorganization.

1979: a seminal year

The Transportation Bond Issue and NJ TRANSIT

Before 1979 others saw the need for the state to support public transportation. Russ Mullen called his predecessor Dwight R.G. Palmer a leading proponent of this position.



The first NJ TRANSIT Board of Directors met in December 1979 in Newark. They are **William M. Rodgers**, **John C. McGoldrich**, **Martin Brody**, NJDOT Commissioner and Board Chairman **Louis Gambaccini** and **Betty Wilson** of the Department of Environmental Protection. **Richard D. Stanford** for State Treasurer **Clifford Goldman** and board member **Verdell L. Roundtree** are missing from the picture.

“He was the first highway official in the nation to stand up at a meeting of highway officials in the 1950s and say that public transportation is the state’s responsibility. He got the first laws passed to provide subsidies to passenger lines,” Mullen said.

The Commuter Operating Agency (COA) was created by the Transportation Act of 1966 when the Highway Department became multimodal. It was responsible for public transit until NJ TRANSIT was established.

“The COA managed the distribution of subsidy money to the privately-owned railroads and bus carriers to support commuter services and do some capital improvements,” said Bob Innocenzi, former Acting Commissioner, but these measures didn’t work. Service worsened and commuters became irate.

In 1978 Governor Brendan Byrne turned to a public transit expert and seasoned public administrator Louis J. Gambaccini to pull New Jersey out of its quagmire of subsidized bankrupt railroads and bus companies and dangerously growing expensive backlog of repairs on its aging highway and bridge infrastructure.

The Department’s image as a proud, efficient, responsive public agency had become tarnished as a result of deteriorating conditions on all of its modes of transportation. The state’s economy was beginning to be impacted. The mood of the public towards NJDOT was reflected in three failed transportation bond issues in 11 years.

Gambaccini took a page from his public administration background and began with the job of buoying up the low morale of NJDOT employees. He began to get the message out that transportation’s current problems were not the fault of its dedicated employees, but rather the result of inadequate funding and staff.

Gambaccini held regular shirtsleeve meetings with all levels of employees to keep them abreast of his policies and outreach. "He actually trusted the employees' knowledge and ability," said Donna Troiano, Manager of Utilities and Railroad Engineering.

"One might not always agree with his decision, but he always asked our opinion and allowed our input. He had respect for our position. It went a long way to why people responded to any position he took. We knew it wasn't just a decision that popped into his mind one day."

NJDOT employees began to respond and their Commissioner noticed. "It was exhilarating to work with them," Gambaccini said recently. "They worked long hours, had a sense of camaraderie and mission and they accomplished a lot. Their enthusiasm was infectious ... even the old hard-liners from the highway side. Some softened up and became part of the team."

At the same time he faced the unhappy vocal commuters. "The most I will promise you is an open process," he told them. "Look over our shoulders and see if we're doing everything humanly possible. If we are, don't be part of the problem. Join us and help us to lobby the legislature for more funding." Some of the commuter advocacy groups that Gambaccini met with exist today.

Getting the 1979 Transportation Bond Issue approved was an enormous challenge – and success. Among the tools were financial support for a public campaign, a "blue ribbon" committee

representing many facets of the private sector and dramatic media tours to see crumbling bridges and conditions that needed to be fixed.

"We concluded that one of the reasons past bond issues failed was that the environmentalists and highway builders were at war and the promises of the past were never delivered," Gambaccini said.

"Our response was: 'that was then; this is now.' We would not over-promise ... With the exception of the local match for federal money to build new highways, the rest of the funding from the bond issue would be used exclusively for transit and highway rehabilitation," he said.

Cathy Sweeney was Director of Communications and Community Relations 1978-1981, a key member of the team that helped Gambaccini get the bond issue passed and create NJ TRANSIT.

"I remember long, really late nights," Sweeney recalled. "They were all very important things we were working on and there was a wonderful team of people, including those in the regions. I did customer-advocacy type training – traffic



Donna Troiano
Manager of
Utilities and
Railroad
Engineering



John Moore
Retired Manager,
Statewide Planning

engineers and designers. Getting NJ TRANSIT and the Bond Issue in that short period of time was a tremendous high."

"When we became the Department of Transportation we changed our name to one that was multimodal, but in reality we were still a Highway Department," said Innocenzi.

"It wasn't until NJ TRANSIT was created as an independent arm of NJDOT, (the NJDOT Commissioner is chairman of the NJ TRANSIT board and it is funded in part by state dollars), that we truly became multimodal," he said.

"NJ TRANSIT was a major NJDOT accomplishment of the 20th century," said Deputy Commissioner Al Ari. "It evolved out of NJDOT ... We were the incubator for the new organization."

The Transportation Act of 1979 that created the New Jersey Transportation Corporation, NJ TRANSIT, was born out of the need to reverse the neglected state of passenger buses and trains. It worked. The third largest and one of the best public transit agencies in the nation, NJ TRANSIT was named best Public Transit Agency in the U.S. three times by the American Transit Association. Today its very success has led to a new generation of problems: capacity trips on an aging inventory.

Today's Commissioner James Weinstein agrees. "In the course of the 20 years that NJ TRANSIT has been around, we've created quite a remarkable agency: it's moving 400,000 people a day on buses, trains and light rails. NJ TRANSIT is a statewide organization, the first and only one of its kind in the nation. New Jersey is one of the great intermodal connection spots in the nation, probably in the world, certainly in the Northeast."

Donna Troiano calls this period one of her proudest times at NJDOT. "We needed to get the highways integrated with the rail and bus lines," she said. "You had to get bus stops and vanpools or the state was going to gridlock. I think Gambaccini was able to open our eyes to that and I think New Jersey as a whole became aware that we needed to get more than a one-direction solution to transportation."

"He made us all proud of the way he could deal with the Legislature, the politicians and the respect he showed the people that worked here," Troiano said.

John Moore, former Manager of Statewide Planning went further. "He ensured that New Jersey, the most densely populated state in the nation, had a good transit system."



Al Ari
Deputy
Commissioner

NJ TRANSIT
The Way To Go



1984 Transportation Trust Fund

By the time Governor Tom Kean took office, the 1979 Bond Issue dollars had been gobbled up by the enormity of the cost of reducing the backlog of long overdue repairs. Although preliminary designs and engineering were completed for many projects, there was no money left to match federal dollars to award contracts for construction.

Kean turned to attorney John Sheridan to be his Transportation Commissioner and find a solution. Sheridan in turn selected present Commissioner Weinstein first as his Director of Communications and Community Relations and, ultimately, his special assistant to explain and gain approval for a brand new kind of transportation financing: a trust fund.

"The problem with transportation projects is they're expensive and you need financial stability," Weinstein said. "You need to know when you contract an engineering firm to design a project, you're going to have the money to actually build it."

The 1984 Transportation Trust Fund, approved on a bipartisan basis and supported by voters several times to constitutionally dedicate a portion of the gas tax, still funds transportation in a somewhat altered version today. It uses a mix of annual appropriations from the Legislature and revenue from bonds authorized by the Legislature and invested by the Trust Fund Authority from income from gas taxes, motor vehicle fees and toll roads.

"It assures your funding source because the money is dedicated and the Legislature and our citizens have an annual program of projects," Weinstein said.



Governor **Tom H. Kean** enthusiastically signed the Transportation Trust Fund Authority Act in a public ceremony held on July 10, 1984 in the State Museum Auditorium. He was surrounded by leaders of the Legislature: Senator **S. Thomas Gagliano**, Assembly Speaker **Alan J. Karcher**, Senator **Walter Rand**, Senator **John F. Russo**, Senate President **Carmen A. Orechio** (hidden), Commissioner **John P. Sheridan Jr.** and Assemblyman **Wayne R. Bryant**.

Aviation

Today the Division of Aeronautics oversees all aspects of general aviation in the state. It's responsible for all aspects of New Jersey's air transportation system of private and public airports through its mission to:

- protect the safety of the general public and those participating in aeronautics
- preserve and promote New Jersey's air transportation system
- ensure public understanding of the role of aviation
- preserve and enhance the economic benefits New Jersey receives from the air transportation system
- enhance aviation safety and education statewide.

Although NJDOT has general oversight of 52 general aviation airports, the department does not have statutory authority to actually operate them except on an emergency basis. But the airports and the aircraft that use them are an integral part of New Jersey's intermodal transportation picture and the Division is guided by a variety of statutes, regulations and executive orders.

Through its Division of Aeronautics, NJDOT has three roles to play in working with New Jersey airports. First, the department serves as a financial conduit for Federal Aviation Administration funds. Second, New Jersey has its own aviation program which NJDOT handles. Third, NJDOT has some safety policing responsibilities on behalf of the National Transportation Safety Board.

"This unit has expanded to include motor carrier and port issues, since both had a major impact on NJDOT facilities," said Ted Matthews, Executive Director of Aeronautics and Freight Systems. The unit also includes the Federal Motor Carrier Safety Assistance Program and the Hazardous Material Enforcement Unit (HAZMAT).



Ted Matthews
Executive Director,
Aeronautics and
Freight Systems

In 1984 the state's 62 public and private airports included one international airport, Newark. The seven commuter airlines operating in New Jersey showed a 22 percent increase in passenger boardings from 1979 to 1980, the largest growth in any segment of transportation. By 2001, the public and private airports totaled 49 with three air service airports, Newark, Atlantic City and Trenton Mercer. The numbers varied due to changes in flying habits of the public and differences in airline philosophy.

NJDOT is dedicated to preserve and develop each of the airports identified as important to the state's transportation system. In the 1990s New Jersey invested \$80 million federal and state dollars to upgrade and add new facilities to meet current, more stringent design standards; in the next decade the state will invest an additional \$100 million.

National flights leave from Trenton Mercer, and national and international flights leave from Atlantic City and Newark.

Newark International Airport served 834,000 passengers in 1960; 9,223,260 passengers in 1980 and 33,297,000 passengers in 1999.

Passing the torch

1892 to 1966

State Board of Agriculture President and Roads Administrator

1892-1894 – Edward Burrough

Commissioners of Public Roads

1894-1895 – Edward Burrough

1895-1905 – Henry I. Budd

1905-1911 – Frederick Gilkyson

1911-1917 – Col. Edwin A. Stevens

State Highway Commission Chairmen

1917-1920 – John W. Herbert, Helmetta

1920-1923 – George L. Burton, South River

1923-1933 – Maj. Gen. High L. Scott, Princeton

1933-1935 – Col. Arthur F. Foran, Flemington

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. C. Palmer
Short Hills

NJ Department of Transport



David J. Goldberg
1966-1970



John C. Kohl
1970-1974



Alan Sagner
1974-1977



Russell Mullen
1977-1978



Anne P. Canby
1981-1982



John P. Sheridan, Jr.
1982-1985



Louis J. Gambaccini
1978-1981



Roger A. Bodman
1985-1986

Transportation Commissioners



Hazel Frank Gluck
1986-1989



Robert Innocenzi*
1989-1990



Tom Downs
1990-1993



Kathy Stanwick*
1993-1994



Frank J. Wilson
1994-1996



John J. Haley, Jr.
1997-1998



Dennis Keck*
1994



James Weinstein
1998-present

*Acting



Arlene Butler Feldman, the first female to hold the position in the state and in the nation, was appointed as Director of the Division of Aeronautics in 1982. Feldman sought to provide a "stronger, more economically secure aviation community in New Jersey."

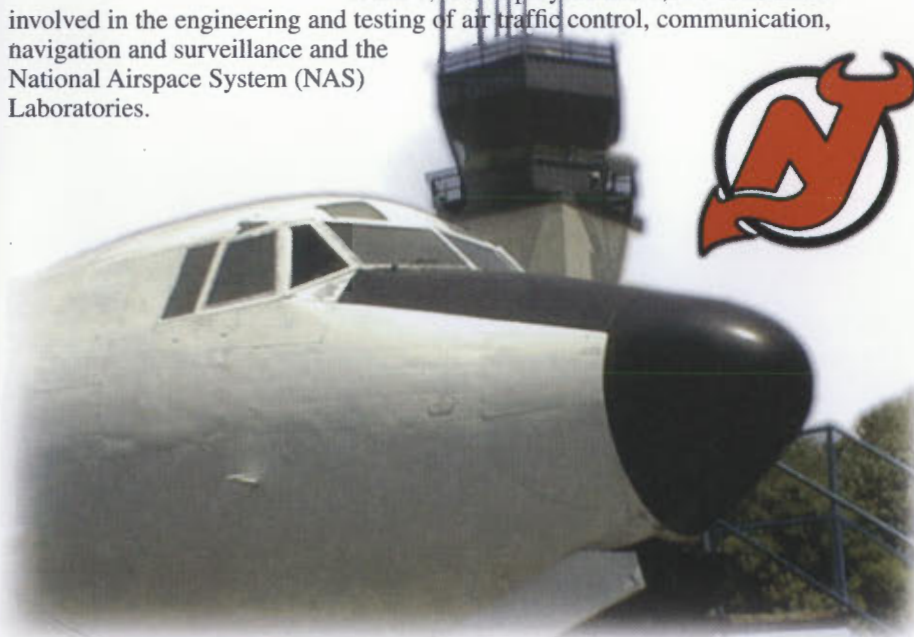
involved in the engineering and testing of air traffic control, communication, navigation and surveillance and the National Airspace System (NAS) Laboratories.

The airport complex grew from one administration and terminal building erected in the 1930s, before Port Authority operation in 1949, to a complex that currently has 56 airlines, an international passenger facility, an on-site hotel, 12 miles of 75-foot wide taxiways, cargo buildings, hangars, a fuel storage and central heating and refrigeration plant, a control tower area, 14 miles of airport roadways and a monorail "quick connect" system among terminals.

The original building housed the first Division of Aeronautics offices for the State of New Jersey under Director Gill Rob Wilson. The Port Authority moved the building to the present Newark Airport location to house its airport management offices.

Formerly a public use airport, Atlantic City International Airport is owned and operated by the South Jersey Transportation Authority. Three commercial airlines as well as private, public and military aircraft use the two runways. The new terminal can accommodate 1.3 million air travelers annually, with free daily parking for 2,000 vehicles. The complex also houses the FAA William J. Hughes Technical Center.

Operated by the Federal Aviation Administration, it has 1,600 employees and 1,300 contractors



The third largest public use airport in the country, Teterboro Airport, is seven miles from New York City and is used regularly by famous travelers, such as the Stanley Cup winning New Jersey Devils sports team. The airport also houses the Aviation Hall of Fame, which offers the public a chance to view historic air and space equipment, artifacts, photographs and fine art.

Ending the century: 1980s - 90s

Subway and light rail

Noting an obvious need for substantial public transit to assume operation of the commuter rails and buses in New Jersey, NJ TRANSIT continued to operate the only subway in the state, which was originally started in 1930.

The Newark City Subway, part of the NJ TRANSIT bus operation, is a 4.5 mile light rail trolley system between the Newark-Belleville border and Newark's downtown. The subway provides 17,000 trips daily, seven days a week, with evening rush-hour service every two minutes. NJ TRANSIT has plans to replace subway cars that have been in service since 1945 with a new fleet of larger, more spacious light rail vehicles.

Light rail as commuter travel was reborn at the end of the 1990s.

The Hudson-Bergen Light Rail Transit System, a 20.5 mile system between Bayonne and Ridgefield Park in northern New Jersey opened its first segment between Jersey City and Hoboken in 1999.

The future Southern New Jersey Light Rail Transit System will run from Camden, along the Delaware River, and connect with PATCO trains to Philadelphia and with the Northeast Corridor in Trenton.



The Hudson-Bergen Light Rail Transit System started operation in 2000.

Women and transportation

The 1980s brought many "firsts" to transportation. One of those was the first female commissioner.

Anne P. Canby

When Commissioner Louis Gambaccini resigned to take a position with the Port Authority of New York and New Jersey, Assistant Commissioner for Management Anne P. Canby replaced him in September 1981.

Before her appointment to Commissioner, Canby had managed NJDOT's budget, capital programming, employee services and the engineering and operation units. She came from USDOT and was considered an expert in transportation finances.

With a national oil crisis and reduced speed limits on the highways to 55 mph, the Department looked to other means of transportation. A cyclist, Canby supported alternate modes of transportation, including bicycling.

"I made all the engineers get on their bikes and ride down to the State House with me. The governor was out of town, but Joe Merlino, President of the State Senate, was there and he greeted us with a resolution," she said. "I used to ride my bike to work . . . and park it in the commissioner's spot."



As Commissioner, **Canby** led a bike ride from NJDOT headquarters to the State House to send an environmentally sensitive message.

I think it was probably a little devilish of me. People would look out and say, 'What's she doing?' I'd just put my kickstand down."

In 1991 the helmet law was passed; in 1998 it was amended to include roller skates, inline skates and skateboards.

NJDOT employees who worked on the project join Commissioner **Gluck** (fourth from left) in cutting the ribbon on DOT TOT when it opened in October 1987.



Hazel Frank Gluck

Governor Tom Kean named Hazel Frank Gluck Transportation Commissioner in 1986. One of her priorities was to advance the percentage of women employed in non-clerical construction jobs. To accomplish this, she issued policies and set up training programs and a special task force made up of public agencies, contractors and unions. The number of women employed on NJDOT jobs as carpenters, heavy equipment operators and truck drivers doubled in the first year of this "Women in Construction" initiative.

Affordable child care for employees was another Gluck priority. Under her leadership, DOT TOT became the first state-sponsored child care facility when it opened on Department property in Ewing. "DOT TOT truly reflects cooperation among the NJDOT family and union representatives, volunteer private sector individuals and private enterprise," Gluck said. The facility is still in operation.



Retired Chief of the Bureau of Maintenance **Dot Andres**, the first female engineer hired in the Department, was also the creator of the New Jersey Snow Plow Rodeo, where snow plow drivers from the north, south and central regions in two-person teams compete for overall supremacy.

The snowplow course simulates real life situations such as plowing around parked cars, straight line plowing along a curb without breaking up the concrete, right and left turns and serpentine moves (going in and out of a series of barrels).

Andres said she was trying to find a way to get workers ready for winter. Her first major snow storm happened in 1983 when she was three weeks on the job in the Newark area. "The storm closed down the metropolitan area," said Andres. "It was awesome seeing what had to be done and how some people worked around the clock - 36 hours for some people - trying to get people out of closed-in neighborhoods and on to main highways."



"It was hard when I first got hired. I said, 'Look, you could have taken the test, just like I did.' I take pride in my job and a lot of people do. There are great opportunities out here in transportation."

Debbie Buckley
Crew Supervisor
Highway Marking

Changes in the workplace

Employee training at NJDOT took a leap forward when all records were computerized and a goal was set for each NJDOT employee to complete one career related course each year.

Computers made their mark at the Division of Motor Vehicle Services in 1981 signaling the start of a new trend in customer service and looking closely at the way business was conducted with the public. First the agencies automated and initiated a photo license program. Then the Division began a 24-hour, seven-day automated phone system headquartered in the Telephone Center that handled 87,000 calls a month from the public.



Manager Yvonne Dawkins of MVS Business License Services pictured with Diana Bridgeforth and Willie Thompson, said, "When I came on (in 1969) I remember titles and registrations being done by typewriters; it was done manually. It's faster now. It makes things easier for us when the computers are not going down."

In 1992 MVS Headquarters moved to a new nine-story building in Trenton. After four years of planning and building, 1,200 employees vacated old buildings in downtown Trenton and the surrounding area to occupy the sparkling nine story building at 225 East State Street.

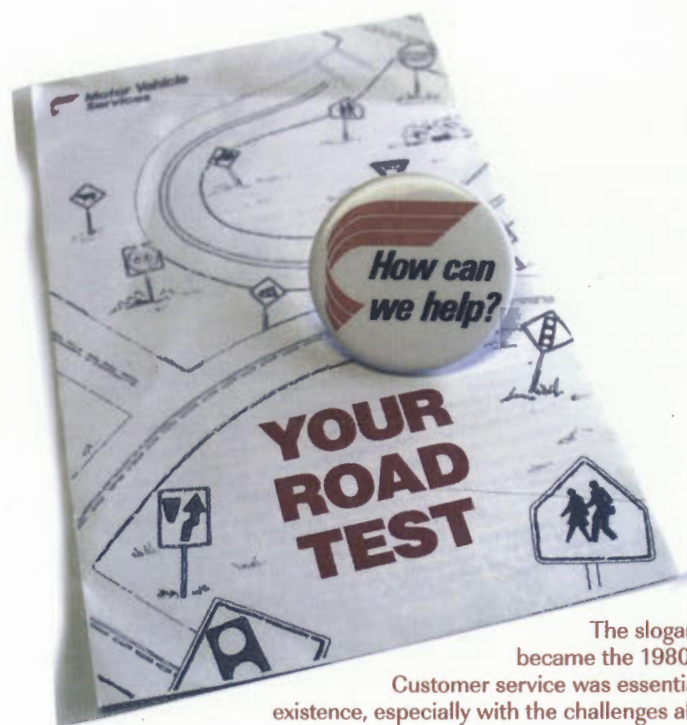
Shifting operations meant uprooting and reinstalling complex equipment on the weekends so day-to-day business operations could continue without interruption. The Telephone Center move was a concern. Tight coordination between the system's providers, the movers and MVS employees made the move a success.

By 2000 the public's inquiries increased to 300,000 per month.

The number of New Jersey registered passenger vehicles increased from 3.1 million in 1970 to 3.9 million in 1980 and 4.6 million in 1990. Other vehicles, such as MOPEDs, motorcycles, agricultural vehicles, commercial vehicles registered as passenger vehicles added one million more registrations. Keeping track of the owners and renewals was a monumental task. MVS automated the renewal notices and upgraded the mailroom processing system as the number of registrations increased. Motorists generally would renew by mail or in person at an agency.

In 2000 the MVS mailroom processed 4.2 million passenger registration renewals which did not include ATV, motorcycle, MOPED, snowmobile, commercial and other vehicles. To expedite the renewal process, MVS added AccessDMV which allows a motorist the option of registration renewal through the Internet or by telephone.

Increased registrations meant increased inspections. The 1980s saw vehicle line backups as New Jersey's inspection stations became more crowded. The state licensed private sector vehicle inspection centers (PICs) to supplement the state operated lanes to speed up the inspection process. In the 1990s when the inspection lines meant hours-long waits, managers walked the lines offering packets of magazines to motorists to ease their wait. At the end of the 1990s, MVS added stricter emissions inspections, to comply with the standards of the federal Clean Air Acts, appointments and extended the yearly vehicle inspection to two years.



The slogan "How Can We Help?" became the 1980s theme of MVS.

Customer service was essential to the Division's existence, especially with the challenges ahead.

MVS also launched a series of special interest license plates that gave the public a chance to donate, through a portion of the cost of the plates, to the state's clean water, wildlife conservation, historic and animal population control. Although more costly at \$50 for an initial application plus \$10 to \$15 additional per year, the plates became popular and the choices grew to benefit other special interests, such as Pinelands, Conquer Cancer, Olympic Spirit, USS Battleship New Jersey, Baymen's Heritage, Liberty State Park, Treasure our Trees, Meadowlands, Deborah (hospital) and Agriculture.

One major challenge for MVS was the federal mandate of the Commercial Driver Licensing (CDL) Act that required retesting of all of the state's commercial drivers and initiating a testing and licensing system for all commercial applicants. In April 1992 the Division successfully instituted a system to identify current commercial drivers.

Today New Jersey is designing a Commercial Vehicle Information Systems and Networks (CVISN) program to develop an electronic data exchange that will support commercial vehicle operations parallel to federal and other states' standards.

Fine arts

The NJ Public Building Arts Inclusion Act of 1978 says art must be included in the budget for major new public buildings. Sculptures and a mural were commissioned with the assistance of the NJ State Council on the Arts when the Engineering and Operations Building was constructed and other improvements made to headquarters in 1990.

Public art was also commissioned for the Hudson-Bergen Light Rail passenger stops.



A popular plate launched in 1993, sponsored by the Department of Environmental Protection, was the "Shore to Please" plate to benefit coastal protection through a shore cleanup program. By 1996 the proceeds from the sale of the popular plate (more than 50,000 were sold) helped build sewage pumping facilities at marinas, provide water quality testing and support the Adopt-a-Beach program, in which volunteers clean the beaches.



The West Side Avenue, Bayonne, pedestrian park on the Hudson-Bergen Light Rail Transit System is called *Bumper Structure* by Don Kennell.



The Engineering and Operations (E&O) Building gave Headquarters employees formerly in leased offices 280,000 square feet. The 18-foot sculpture, "Earth, Water and Sky," at the E&O Building entrance is an abstract work cast in three tons of bronze by international sculptor Isaac Witkin of Pennington. Other works of art include murals near the cafeteria and in the Main Office Building, and a mobile/sculpture in the Main Office Building.

Environmental concerns

Since federal legislation in the 1969, NJDOT has assessed the environmental impacts for transportation projects and offered mitigating solutions as necessary. We are committed to clean air, water and soil and the preservation and improvement of ecological systems, important historic cultural and aesthetic resources and socio-economic community values.



The NJ Department of Environmental Protection (NJDEP) and NJDOT partnered in March 2000 to share their knowledge and use their inhouse resources to increase awareness about the need to protect water quality. The partnership is a natural because 96 individual watersheds and 566 municipalities exist in New Jersey and are criss-crossed by some 36,000 miles of paved roads.

Andras Fekete, Manager, Environmental Services

"NJDOT has probably had a larger role in shaping the geography of our state and the quality of life of its people than any other agency . . . I'm a product of the National

Environmental Policy Act of 1969 that said before you spend any federal dollars, you need to do environmental impact studies . . . I

manage a multi-disciplined staff who recognize the importance of being good stewards of our environment and who use its talents to build projects that really fit well into the environment."



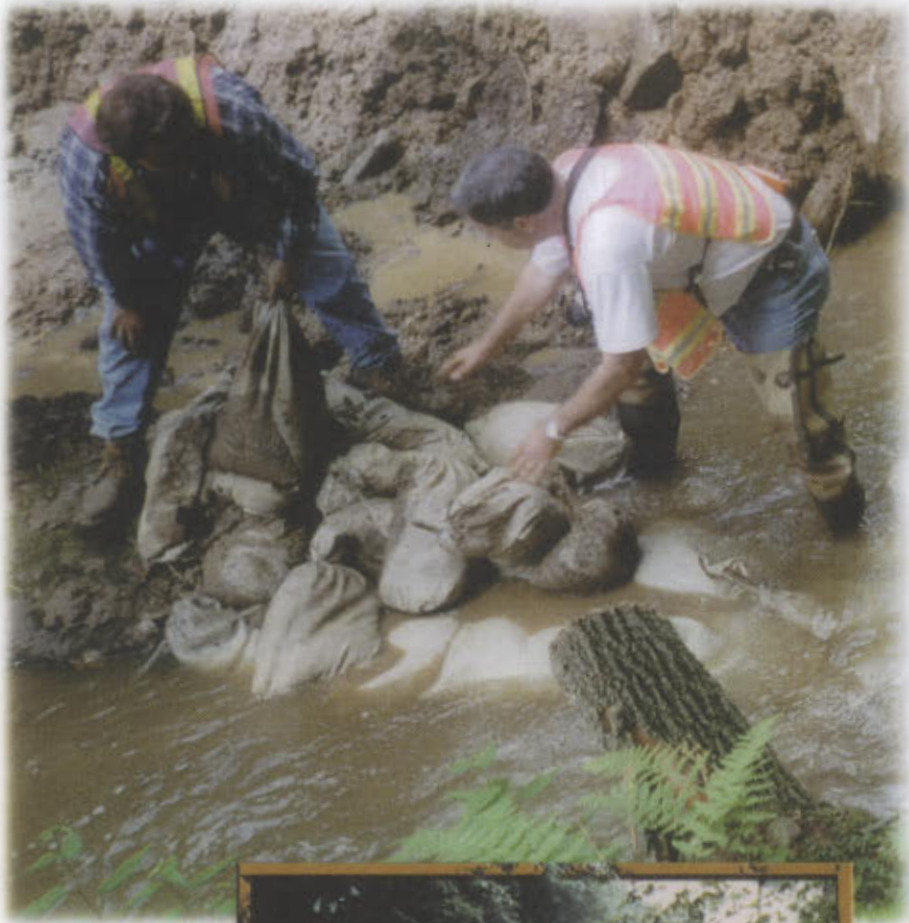
Key to excavating historic landmarks, such as Abbott Farm, a National Historic Landmark in Mercer County which was discovered in 1870 by Dr. C.C. Abbott, are NJDOT's Bureau of Environmental Services work relationship with consultants, such as these members of the Louis Berger staff.

NJDOT is an active participant in the state's anti-global warming initiative. We replace two trees for every one we remove during a project.



NJDOT's **John Croncè** and **Greg Homa** repair a failed slope and shoulder on Route 23 near Sussex with a cost effective method and materials of pervious concrete and geotextile fabric that will benefit watersheds. The project of repairing the eroded slope, caused by surface runoff from Route 23, and by rain, snow and sleet, took a year of planning by

geotechnical and hydraulics engineers, Region North Survey and Design and Structural Management before completion in March 2000. When properly placed, the concrete absorbs storm water and can dramatically reduce pollution of rivers and streams.



The brook trout is a native New Jersey. To protect it and two other wild trout species during the construction of a truck passing lane on Route 206 in Flanders, we moved Flanders Brook.



In October 2000 NJDOT North Region crews assisted in the installation of an historic marker on a WABC international short-wave radio station's former transmission site in Wayne, Passaic County. Crew Supervisor **Dean Yunkunis** holds the marker that commemorates the Wayne Radio Transmitter Building, built in 1931 by the Columbia Broadcasting System (CBS). It was used by the Voice of America and during World War II to spread United States and Allied messages in Europe. In 1995 the New Jersey State Historic Preservation Office listed the building in the National Register of Historic Places, the nation's official list of significant historic properties.

In 1991 the Department launched the successful Adopt-A-Highway Program to help keep our highways clean and beautiful. The program also heightens awareness of individual responsibility and helps reduce maintenance cost. The familiar Adopt-A-Highway sign and logo identifies the volunteer group and NJDOT supplies all of the required equipment. A landscape program and a prisoner pickup program add to this effort. In 2001 more than 3,000 volunteers adopted 635 highway sections and collected 29 tons of garbage.



Recycling on the outside and in the buildings was the word in the early 1990s. NJDOT vehicles were fitted with retread tires, which are priced competitively with regular tires and manufactured using a molding process of layering tread on a recycled tire casing. NJDOT set the example for other state departments with a model recycling program at the Headquarters and Central Region (Freehold) facility in 1990. At the one-year anniversary of the program, Director of Central Services Donald Chiacchio announced an expanded program to the other regions by placing the specially marked recycling containers in all Department buildings.

In a promotional poster Photo Laboratory Secretary **Dawn McMillan** places used paper in specially marked drums as part of the recycling campaign.



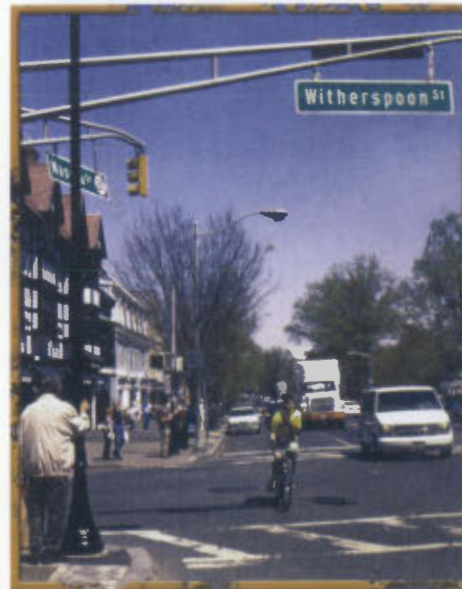
Ensuring safety

Safety is the keyword for all projects. It means keeping the roadways safe for drivers, helping motorists get where they're going with ease, ensuring that the vehicles driven in New Jersey are safe, protecting our employees on the job, and sponsoring special programs for all New Jersey citizens, young and old.

Signs

Making new meaningful signs for the millions of motorists traversing the state was a priority in the 1990s. NJDOT placed local street names on free-standing signs where county routes intersect interstate highways. The new "mast arm" signs identifying local street names from state roads were a tremendous success. Several counties emulated the program.

NJDOT Engineer Richard A. Strizki, while working in the Division of Traffic Engineering, completed his design for a New Jersey load concentrated breakaway coupling (LCBC) in 1969. Breakaway supports for signs and traffic signals placed alongside the roadways are designed to break or yield when struck by a vehicle, preventing death and injury to motorists.



NJDOT installed mast arm signs with local road names on traffic lights in November 1996.

According to Strizki, who holds a patent for the LCBC, the device "permitted design-controlled failure in any direction" which was not the case in published breakaway systems of that time.

Although Strizki originally experimented with fiberglass for the breakaway coupling on the sign post, the material ultimately used was a steel alloy, made in the Department's machine shop under the supervision of Joseph Saproini. The breakaway device requires no special bolt torquing or special skills for installation.

NJDOT and the New Jersey State Police (NJSP) ran tests to simulate the maximum normal wind loads and dead weight as specified by the American Association of State Highway Transportation Officials (AASHTO) standards. During the final test a 6,470-pound truck traveling 12 mph before impact was used because

its weight allowed it to be driven slowly while the NJSP recorded the radar graph.

The unit met the Federal Bureau of Roads

standards, which meant it could be considered breakaway and would be approved for federal aid participation.

The Federal Highway Administration adopted the AASHTO standards for breakaway tests and performance which were updated in 1985 and 1994.

Engineer **Richard A. Strizki**



NJ breakaway signs, a national first, lessen impacts on drivers in accidents thanks to this load concentrated breakaway coupling.



NJDOT began using a fuel cell system in 1996 that is a clean, non-polluting source of backup energy for variable message signs (VMS).

Helping motorists in distress

When it comes to excellent marks for customer service on New Jersey highways, the Emergency Service Patrol (ESP) that operates on several interstates ranks high. Funded by the Federal Highway Administration (FHWA) initially as a pilot in 1994, the ESP assisted 11,000 motorists in trouble in the north and 15,000 more in the south during the first six months of 2001.

On the average, as the ESP crews ride along the state's roadways, they stop up to 40 times a day for flat tires, to tag vehicles so the NJ State Police can tow them, give gas, add water, push cars from the roadway lanes, or deal with mechanical, electrical or lockout problems.

Removing these vehicles from travel lanes also keeps other motorists moving and safer.



Protecting bicyclists and pedestrians

In 1998 a new law extended the helmet requirement for children under 14 to roller and inline skates and skateboards. The original helmet requirement for children under 14 who ride bicycles was passed as part of Title 39, Motor Vehicle Laws in 1992.

NJDOT annually provides 75,000 copies of the *NJ Bicycle Manual*, and other educational booklets, flyers and posters to private citizens, libraries, police departments, for bike rodeos, at conferences and to inform schools about the existing and new laws as they become effective.

NJDOT awarded \$11.4 million in bicycle and pedestrian grants to 97 municipalities in February 2000, of which \$4.7 million is slated to enhance pedestrian and related school safety programs.



Ensuring school bus safety

A newly-created team of Motor Vehicle Services (MVS) safety specialists began in-terminal school bus inspections at bus terminals. In 2001 MVS safety specialists completed 32,275 biannual inspections at 1,251 terminals from January to June. The owners have to make the necessary repairs to failed vehicles and have them reinspected to get them back on the road.



MVS Safety Specialist Paul Leonhardt inspects the underbody components of a school bus including the fuel lines, tanks and suspension.

Work Zone safety

In 1991 NJDOT began to use "Give us a brake" signs and "Stop/Slow" hand paddles for the safety of those working on highways: survey, construction and maintenance. The collapsible paddles gave survey crews more visibility and safety while working on and near roadways.



Anker Winther, Supervising Engineer, Construction, addresses the audience about the importance of Work Zone Safety Week in New Jersey held April 3-7, 2000.





Jack Buie and Jim Stevenson take a moment to visit the Employee Memorial.

Louis Caruso

In April 2000 the American Traffic Safety Services Association presented the Golden Cone Award to NJDOT for promoting the work zone safety message in New Jersey during National Work Zone Safety Week.

Later that year NJDOT employees dedicated the Employee Memorial to honor all employees who have died on the job while designing, building, or maintaining New Jersey's transportation system. Fellow employees began the effort in July 1999 following the death of Louis Caruso of Crew 368, Central Region, who was killed as he was putting up a warning sign on Route 22 in Phillipsburg.

NJDOT employees rallied to construct and landscape the memorial and continue to fund the memorial with a series of fund-raisers from tee-shirt sales, to golf outings, to ball games.



The 1989 winning volleyball team included Dave Kuhn, Laurie Gutshaw, Binh Vo, Camille Sinclair, Todd Wolfram, John McCleery, Linda Artlip and Meg Frampton.

After hours


Sports teams have always brought NJDOT employees together after hours: bowling, tennis, softball and golf leagues, teams and tournaments. Here are a scattering of highlights:

NJDOT employees finished first in volleyball, third in the two-mile run and third overall in the 1989 State Sports Challenge, co-sponsored by the Department of Community Affairs and the Governor's Council on Physical Fitness. One thousand state employees competed in the event.

In 1991 the 140 members of the Trenton area bowling league celebrated its 30th year. In 1993 NJDOT's CADD Development employees aced the A Division Tennis Championship; Materials employees received the B Division Championship. In 1999 NJDOTers sliced and scrambled across the greens at the NASTO golf tournament to a repeat victory while Central Region's championship team scored a victory in the Allaire tournament.

These NJDOT golfers are
(kneeling) Ken Kyte, George Kuziw, John Dourgarian, Dennis Keck, Tom Wospil
(standing) Pete McCabe, Ron Altobelli, Lou Varga, Rich Jablonski, Howard Immordino, Tom Sliwowski and Joe Jablonski.





New Jersey: First in Transportation Technology

- the first stagecoach
- the first regular steam ferry service
- the first steam locomotive in America
- the first ironclad ship
- the first balloon flight in America
- the first longest man-made arch bridge
- the first cable manufactured for suspension bridges
- the first airplane passenger service
- the first airport
- the first airplane manufacturing plant
- the first cloverleaf intersection
- the first scientifically-designed highway barrier used to separate opposing lanes of traffic and reduce head-on collisions
- the first submarine constructed
- the first right of way procedure for transportation
- the first breakaway signs
- the first materials testing laboratory

The next Century

We have begun

"We have built great transit and transportation systems here in New Jersey, but community and environmental values were too often handled as external and not integral parts of that mission.

"We now have an enhanced vision of transportation design, one that seeks to address core environmental, historic, cultural, aesthetic, scenic and socio-economic concerns through a collaborative, open and interdisciplinary planning process."

— Commissioner James Weinstein

The major transportation challenges of the previous century continue into the 21st century: employee training needs, aging infrastructure, increased congestion, integrating systems, funding, technology, social, economic and environmental values, needs and emergencies. What is yet to be revealed are fresh solutions and new issues.

NJDOT Mission Statement: 2001

"To provide reliable, environmentally and socially responsible transportation and motor vehicle networks and services to support and improve the safety and mobility of people and goods in New Jersey."

Respecting community values

The Context Sensitive Design (CSD) approach to planning and designing transportation projects is based on active and early partnerships with communities.

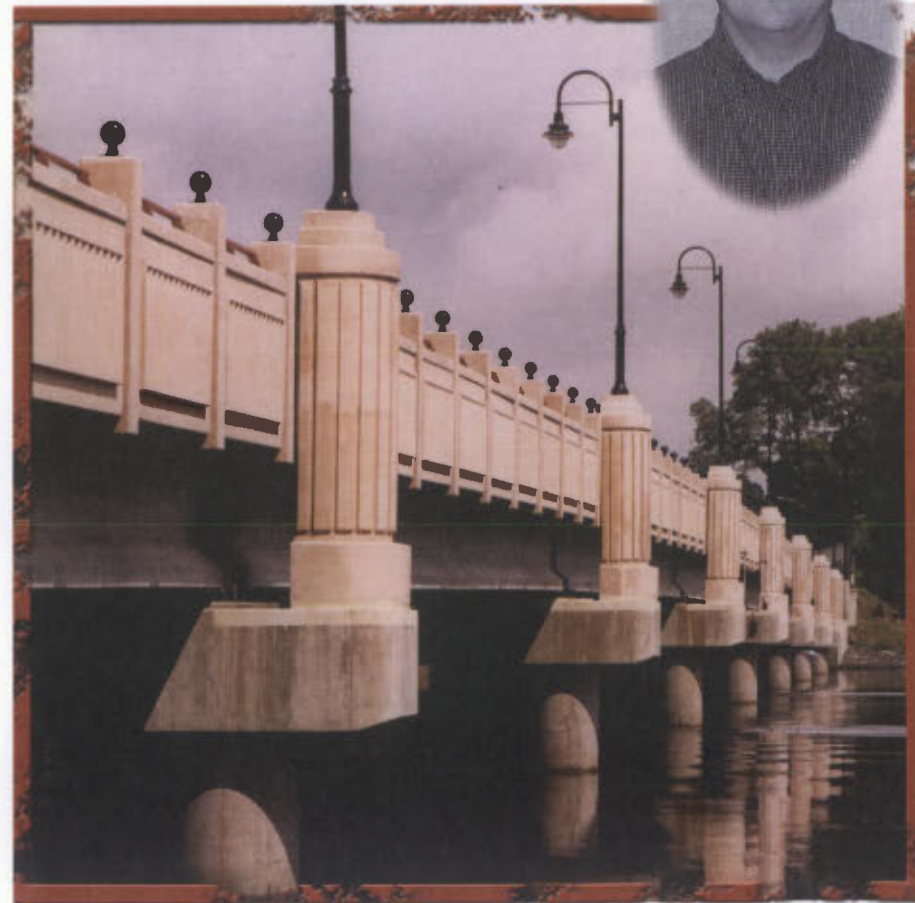
While CSD is not a new concept for NJDOT, it was formally incorporated into its procedures in 1999. It involves a commitment to a process that encourages transportation officials to collaborate with community stakeholders so that designs reflect the values of the people who live, work and travel on them, protect the environment and provide environmental justice. The ideas that flow from this

dialogue should provide creative and safe transportation solutions.

The Congestion Relief and Transportation Trust Fund Renewal Act signed into law in July 2000 requires NJDOT to have a CSD program.

NJDOT engineers, planners, project managers and community relations employees as well as consultants and community leaders have been trained in CSD techniques: flexible design, respectful communication, consensus-building and community participation, negotiation and conflict management. A successful example of the active community participation is the "signature" Coopers Bridge between Red Bank and Middletown in Monmouth County. The bridge was dedicated in 2000 after five years of planning and redesign through a partnership between the communities and NJDOT. The pink-toned bridge with 19th century accents carries pedestrians and vehicles over the Navesink River.

Project Manager Bill Birch (inset) accepted the Monmouth County Planning and Design Award on behalf of the Department for Coopers Bridge (below).



Funding, aging infrastructure, congestion

Another example of CSD is the scheduled reconstruction of the 1929 Elizabeth River viaduct bridge on Routes 1 & 9 in the Hetfield Avenue-East Grand Street section of Elizabeth. The project includes design, construction, acquisitions — and people.

“Two major roles are intermingled,” said Chris Manz, Project Manager, “the community and the project itself. The existing historic viaduct will be razed: our goal is to design an aesthetically pleasing replacement acceptable to the community.”

Because the area is densely populated and the improvements require the relocation of a number of people, the Right of Way (ROW) Office plays a key role. The ROW has to help relocate 92 people, purchase 11 businesses, 20 multiple family dwellings, a motel with permanent residents and a boarding house. To accommodate these needs, ROW opened a temporary office directly in the project’s path.



The 1929 Elizabeth River viaduct bridge’s original construction was 55 feet wide; the new bridge will have a 108-foot width.

“This location gives neighborhood residents a place to come and discuss their rights and benefits, and us an office to conduct real estate parcel negotiations with owners,” said Project Supervisor Debbie Camlet. “Since a large number of local residents speak Spanish, we’ve hired a translation service and also use a translator from our linguistic pool. We work in teams on paperwork, surveys, relocations and translations.”

The bridges and roads built in the 1950s and 1960s now need significant repair and maintenance. In 2000 New Jersey counted 6,332 bridges that need inspection every two years under the National Bridge Inspection Standards (NBIS) to determine if repairs are warranted.

Salim Baig, Manager, Structural Evaluation

“We receive federal money for all of our bridge inspections.

Some things aren’t covered by federal funds. This includes sign structures, bridges less than 20 feet long and railroad carrying bridges.

They’re inspected and repaired using state funding sources.”



Assistant Engineer Mujahid Khan evaluates the bearing rocker of the Interstate I-195 South Broad Street bridge in Trenton.

The voter-approved \$500 million bridge bond was issued in 1999 for bridge repairs and other transportation projects. NJDOT is committed to reducing the deficient bridge backlog of almost \$6 billion in 1998 to at least 50 percent by 2010.

Transportation Trust Fund

The Transportation Trust Fund (TTF) increased from \$700 million to \$900 million a year on July 1, 2000, and will reach \$950 million a year for 2001, 2002 and 2003. These funds generate all types of transportation projects at the state and local level, including municipalities and counties.

The Department allocates funds to projects through the Capital Program required under state law, and the Statewide Transportation Improvement Program (STIP) required by federal law. The Capital Program includes funds allocated to counties and municipalities; the STIP includes state and federal funds and includes projects and programs of the Department, NJ TRANSIT, the counties and municipalities.

Reauthorization of the TTF in 2000 also required the creation of a “Congestion Buster Task Force,” a public-private task force charged to develop a plan and a list of priority projects to combat congestion in New Jersey. Members of the task force include industry leaders, local and state government organizations and the state’s Metropolitan Planning Organizations (MPOs).

New Jersey is one of the rare states that is completely covered by three MPOs that were established under federal planning regulations. One of the most important functions of the MPOs is to annually adopt a Transportation Improvement Program (TIP) that includes all highway and transit projects and programs planned over five years. They prioritize and select transportation projects that will receive federal funding.

The three MPOs are the Delaware Valley Regional Planning Commission (DVRPC) for Burlington, Camden, Gloucester and Mercer counties; North Jersey Transportation Planning Authority Inc. (NJTPA) for Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren counties; and South Jersey Transportation Planning Organization (SJTPO) for Atlantic, Cape May, Cumberland and Salem counties. NJDOT’s Bureau of Statewide Planning works with the MPOs.

Handling emergencies

To keep New Jersey moving is the Department creed, even in emergencies. For example, after twin storms hit the state within four days of each other in January 1987, hundreds of NJDOTers worked 12-hour snow plow shifts.



Snowplow driver **Giuseppe Burton** drives into the face of the storm.

Using 685 vehicles they plowed 10,500 lane miles of highway. State offices closed under a limited state of emergency at midday. Despite the snow, ice, abandoned cars, accidents and panicky motorists, the crews had the roads open by the next morning.

Reports from the NJDOT Emergency Control Center indicated about 21-90 inches of snow fell on the Garden State in January 1996 during 11 individual storms. The 1,200 NJDOT snow plow

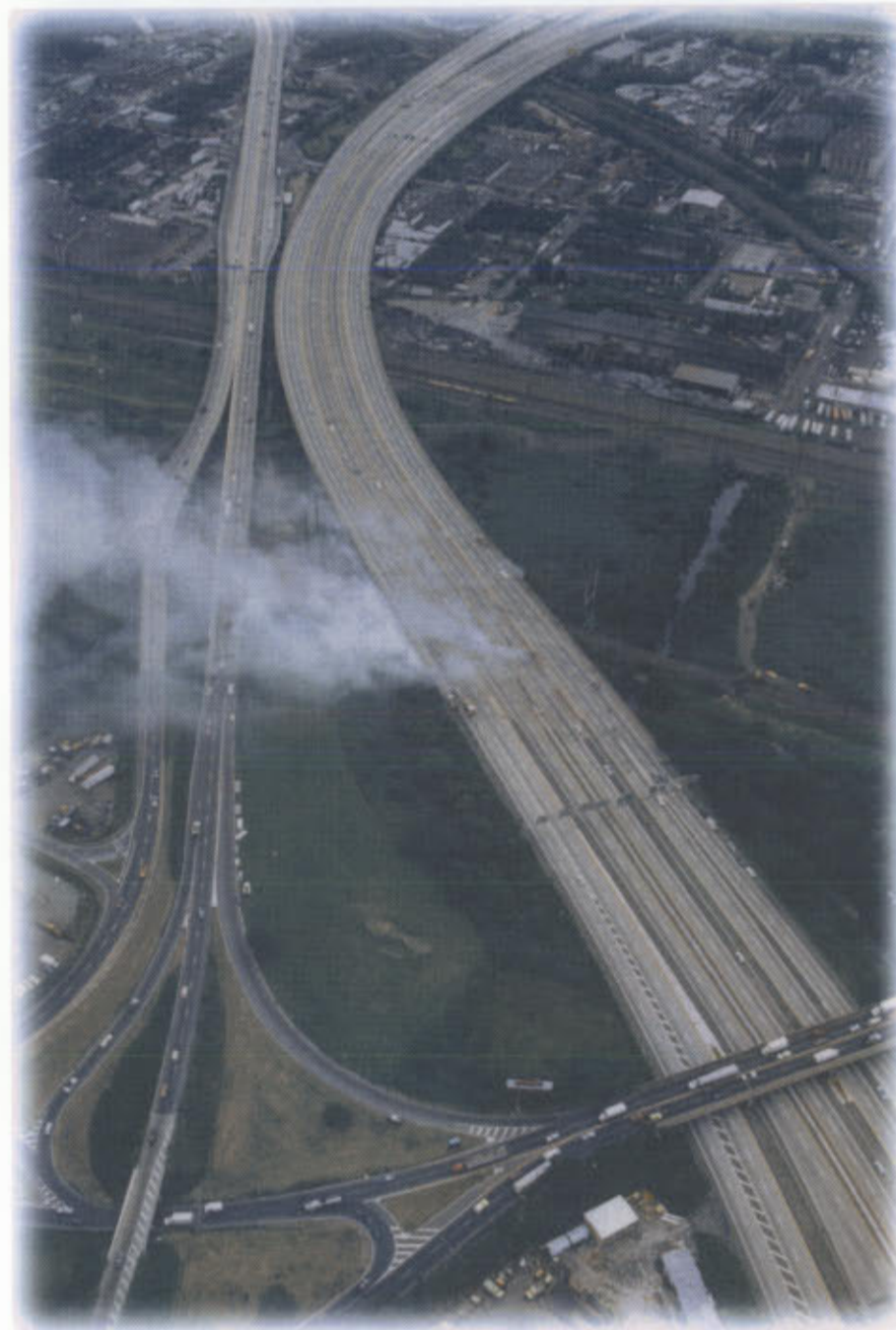
drivers and control center coordinators in the Trenton Central, Netcong, Newark, Freehold and Cherry Hill centers kept the roads open.

Although technological aids like the Roadway Weather Information System (RWIS) provide statistical data about ice and snow on New Jersey's roads and bridges, there's no substitute for preparation. Many of the crew members are volunteers who are on board well before it snows. In October 1998 Clint Griggs, coordinator of NJDOT's snow plow effort, recruited 900 paid volunteers when it was 80 degrees and holding.

"We've got to get the volunteers early so we can train them on the equipment," said Griggs. "Work on the 623 pieces of equipment starts in April. It takes about 280 days to purchase, deliver, train, inspect and repair snow equipment."



Snowplows cleared the state during the snowstorms of 1987.



I-78 on fire, 1989.



Churning flood waters cover Route 1 South in Lawrenceville and block the I-95 entrance. NJDOT closed the roads for the entire day.

Rain is another natural phenomenon that can get out of hand, such as when Hurricane Floyd hit the Garden State on September 16, 1999. Hundreds of NJDOT employees in north, central and south areas of the state worked without stopping during the power outages, evacuations, flash floods, closed roadways, the lack of public transit and erosion. They dealt with stranded motorists and thousands of residents left homeless by the storm.

"The worst of the worst happened on Route 46 in Little Falls when the bridge over Peckman's Creek eastbound collapsed," said Assistant Commissioner Rod Roberson of Operations. "This is just one example of people pulling together. These people worked 12-hour shifts from Friday to Friday. They were there in the middle of the night if we needed them."

Some disasters are caused by nature; others by man.

"I hate to hear the phone ring in the middle of the night," said former Acting Commissioner Robert Innocenzi. "It's never good news."

Innocenzi was referring to the I-78 three-alarm blaze in an unlicensed dumpsite beneath the I-78 bridge in Newark that began shortly after midnight on August 8, 1989. The out-of-control fire raged for 12 hours at temperatures above 1500 degrees, severely damaging the nine-span bridge and leaving the 100,000 motorists who use the span daily between Newark and New York, with a commuting dilemma. NJDOT had to take action, and quickly.



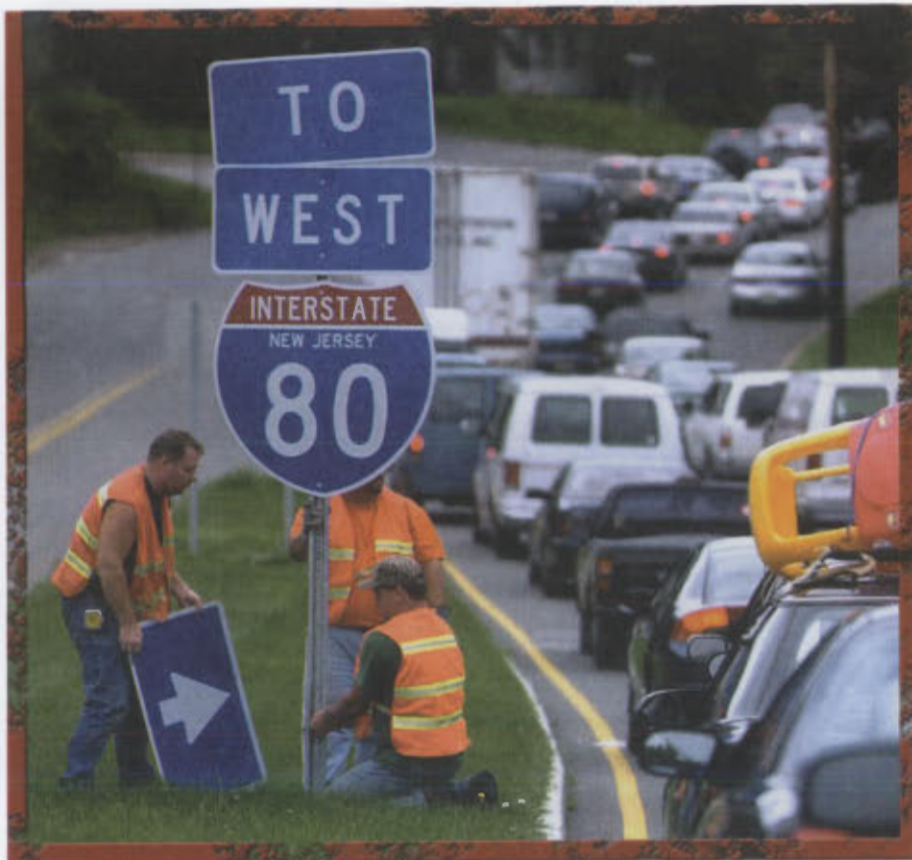
Rod Roberson
Assistant Commissioner,
Operations

Firefighters battled the blaze for two days while NJDOTers from all over the state worked to evaluate the damage and reroute traffic. Some gave up their vacations; some worked weekends and 12-16 hour days. The reward came nine days later when the undamaged lanes of the roadway and a temporary crossover opened to traffic.

Another bridge mishap happened on June 22, 2001. At 5:30 a.m. a multi-truck accident incited a raging fire that engulfed the area surrounding I-80 westbound at milepost 39.4 in Denville, Morris County, destroying bridge beams and damaging the deck. By 6 a.m. North Region Maintenance and Traffic Operations crews responded to the scene with the state and local police, fire and emergency medical squads. They set up detours to keep the rush hour traffic flowing. The next few days saw a major effort of detouring, setting up variable message signs (VMS) to alert motorists throughout the New Jersey-New York area of the emergency situation and the speed limit was reduced to 40 mph.

Structural evaluation showed the need for a temporary structure. Construction efforts included 3,000 linear feet of barrier curbing, several crash cushions, guiderails, striping and three sets of rumble strips.

The temporary bridge, installed within three days of the fire to open the road up to traffic, was subject to high asphalt and air temperatures. The pavement developed severe rutting on the upper-road layer and NJDOT closed the roadway. Maintenance crews staged a major cooling-down effort with dry ice and cold water.



NJDOT workers put up I-80 detour signs after fire. Photo courtesy of *The Record*.

The massive efforts worked. Eight days after the mishap, the temporary bridge reopened with a new, permanent structure planned.

"This will be a huge effort to complete," said Assistant Commissioner Rod Roberson. "But I know we can count on our people; they always come through."



Bernard James, Executive Director of Operations Central
"We are a quick response unit and we're extremely proud of what we do."



Mark Smith, a principal engineer with NJDOT's Traffic Operations Center North in Elmwood Park, stands in front of a bank of television screens showing regional traffic, which is monitored to program signs and dispatch aid, maintenance or emergency services as needed. Photo courtesy of *The Record*.

Keeping traffic moving

Keeping vehicles moving – reducing congestion – in the nation's most densely trafficked state remains an ongoing challenge. Electronic signs remotely messaged according to information received from surveillance cameras, direct web feeds, eliminating traffic circles, and E-ZPass were all techniques in use at the beginning of the 21st century – with other ideas still on the drawing boards. Added capacity on heavily used public transit, ferries and new light rail connections were also on the way.



Principal Engineer **Ralph Mignogna** (standing), and Supervising Engineer **Thomas Reese** work on the reconfiguration of Cardiff Circle in Egg Harbor.

The E-ZPass system of paying tolls is in place on three toll roads and New Jersey's river crossings to New York and four major bridges operated by the Delaware River Port Authority in the Philadelphia area.



The New Jersey Turnpike celebrated 50 years of service — 1951 to 2001 — with a ceremonial groundbreaking at Interchange 1, Carneys Point for the construction of a relocated and expanded interchange in March 2001.

TERRORISTS ATTACK U.S.

NJDOT helps transportation recover

On September 11, 2001, at the end of the morning rush hour, transportation came to a halt in the New Jersey-New York area as federal and local governments shut down all air space in the nation and ground access routes in and around New York City.

Terrorist air attacks struck New York City and Washington, D.C.; another was thwarted by passengers near Pittsburgh, PA, apparently en route to the nation's Capitol. Four hijacked commercial jetliners destroyed the twin 110-story World Trade Center (WTC) towers, home of the Port Authority of New York & New Jersey (PANY&NJ), one-fifth of the Pentagon and gouged a 10 foot-hole into a western Pennsylvania hillside.

The physical damage was greater than what the 1980 eruption of Mount St. Helens caused in Washington State, and cost many more lives – more than 4,000 at this printing – than the bombing of Pearl Harbor in 1941. The devastation at the WTC site was called Ground Zero.

As much of the nation bore witness to one of America's darkest days, other folks – police, firefighters, emergency medical workers and NJDOTers – spun into action.

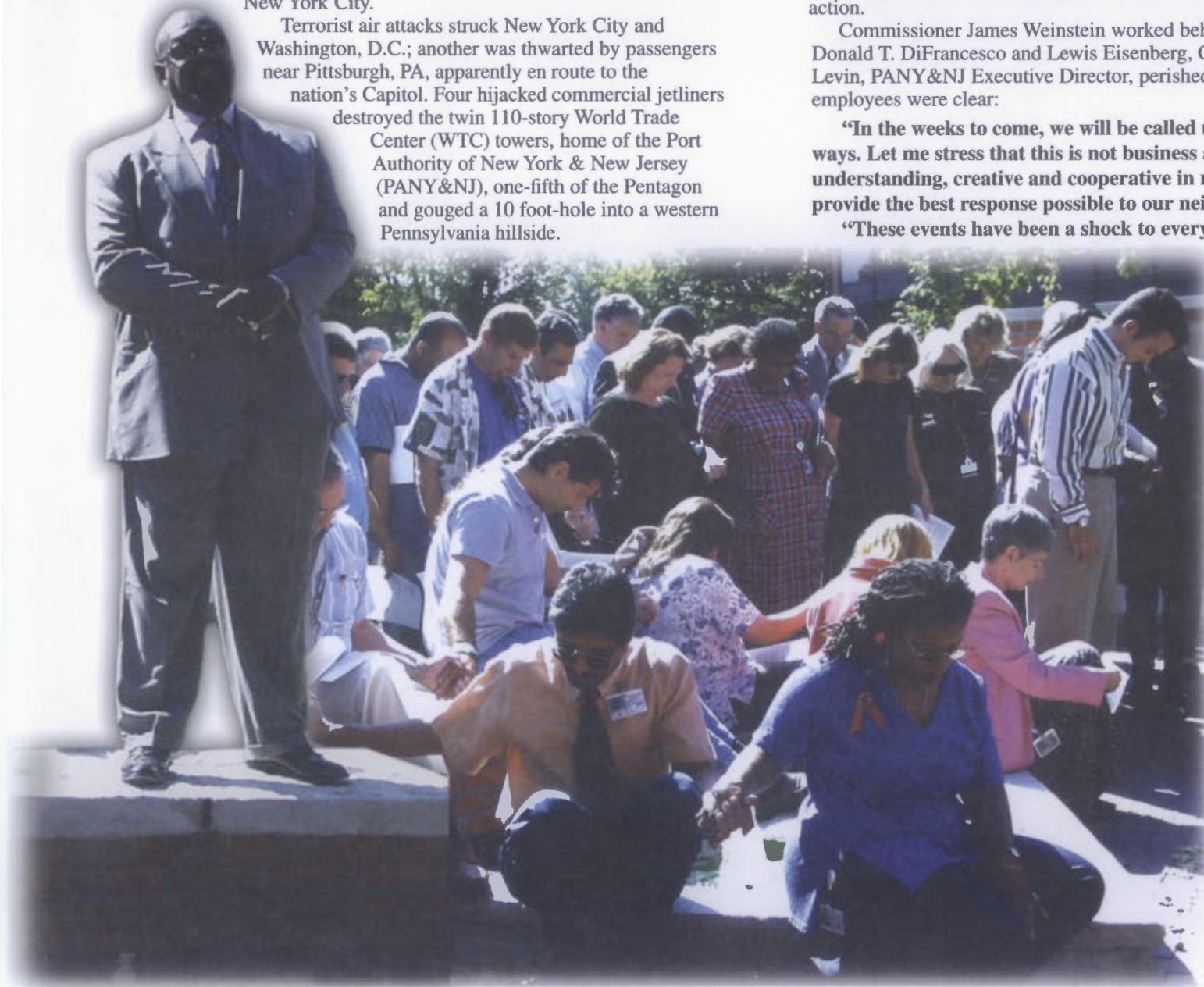
Commissioner James Weinstein worked behind the scenes with Acting Governor Donald T. DiFrancesco and Lewis Eisenberg, Chairman of PANY&NJ. Neil Levin, PANY&NJ Executive Director, perished in the attack. Weinstein's words to employees were clear:

"In the weeks to come, we will be called upon for help in many different ways. Let me stress that this is not business as usual. We need to be understanding, creative and cooperative in responding to this crisis. We must provide the best response possible to our neighbors in need.

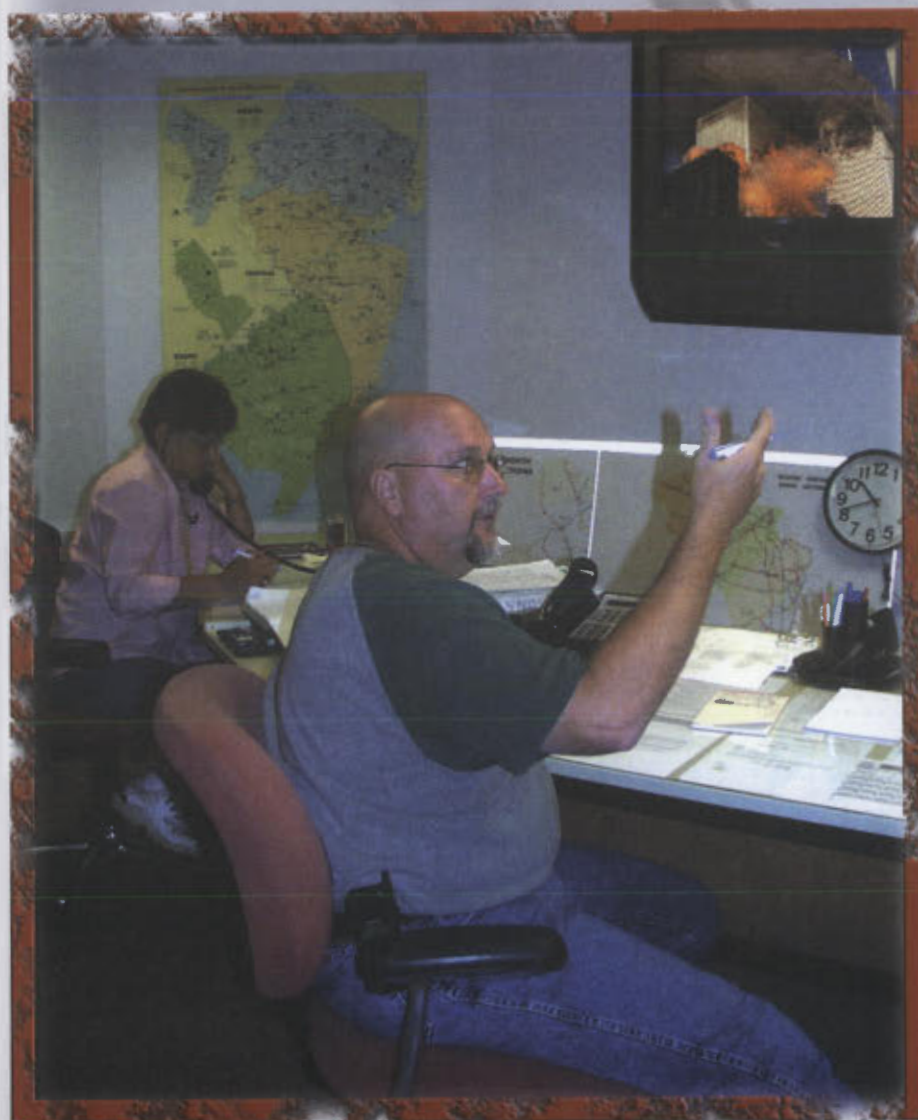
"These events have been a shock to everyone. It is critical in this troubled time that we support each other as co-workers and as friends. Despite the anger and frustration that we all share toward this incident, it is critical that we respect each other and the diversity that makes this Department what it is. As I already know, there's no better place to turn in a crisis than the New Jersey Department of Transportation. May God bless us all."

More than 200 Headquarters employees gathered at the Employee Memorial on September 17, 2001 to sing and pray for the victims of the terrorist attack. A ceremony was held a few weeks later to dedicate the fountain in memory of Port Authority victims of the attack.

INSET: Thomas Johnson, a Regional Manager with Community Relations and an ordained minister, led the session.



The Department's mission was clear. We had to keep the transportation arteries in the heart of the Northeast Corridor operating: northern New Jersey highways, bridges and ports, Newark International Airport, the NJ Turnpike, Staten Island bridges, the George Washington Bridge, the Lincoln and Holland tunnels, PATH operations, ferry service, NJ TRANSIT rail and bus service and Amtrak rail service.



Micro-electronic Systems Technician **Fred Harker**, at Trenton Emergency Control Center with the live broadcast of the World Trade Center in his view, fields a request from the Hudson County Police to close the Pulaski Skyway. Equipment Scheduling Clerk **Darlene Posluszny** passes information requests to the regions.

Coordinating efforts

NJDOT went into action minutes after the two Boeing 767s crashed into the twin 1,350-foot WTC towers at 8:45 a.m. and 9:05 a.m.

● Emergency Management

NJDOT became Federal Emergency Management's Administration's transportation lead when they learned they couldn't fly directly into New York City. Our Emergency Management Team worked at the State Police Emergency Operations Center (EOC), coordinating operations through our Trenton Emergency Control Center (TECC).

For example, when the Department of Environmental Protection called the EOC to move the injured from Ground Zero to New Jersey's Liberty State Park, the emergency management team enlisted the help of NJ TRANSIT, then notified all concerned. TECC worked three shifts 24 hours a day, seven days a week, coordinating information among the regions, traffic operations and the EOC.

● Aviation

NJDOT closed down all general aviation airports at 9:25 a.m. even before the 10 a.m. Federal Aviation Administration announcement that it was grounding the nation's 36,000 daily flights.

Aeronautics' employees at Headquarters scrambled to set up a clearinghouse for hundreds of aviation questions, emergency medical needs and Civil Air Patrol missions, working the phones around the clock.

● Regional crews

The work done by regional crews was critical to the success of the emergency operations.

Traffic Operations North operated its control center on a 24-hour basis. We updated information on fixed overhead and portable variable message signs (VMS) at strategic locations in the north of the state to give the status of bridges, tunnels and roadways.

We also broadcast traffic interference reports by pager, e-mail and on 530 AM, our highway advisory radio frequency.

The North Region and Central Region crews provided torches for cutting iron and steel, generators, pumps and other equipment to Urban Search and Rescue Teams; diverted traffic and escorted emergency vehicles



Greg McDonough, Manager of Inspections and Aircraft Operations; **Cynthia Taylor**, Licensing Manager and **Bart Ritorto**, Aeronautical Operations Specialist worked the phones round-the-clock. They responded to the public, pilots, the Federal Aviation Administration and the NJ State Police.

and oversized equipment from other states. Operations coordinated the contractors who created temporary ferry facilities at Liberty State Park: dredging, paving parking lots and building platforms.

The Bridgewater Yard crews deployed equipment, including VMS and light towers to New York City for use by rescue workers at Ground Zero. Contacted by the U.S. Coast Guard for assistance, crews provided 18 Jersey barriers to secure Sandy Hook. Other employees transported on-site tankers of gas and diesel to the Liberty State Park staging area to fuel trucks, fire engines, loaders, police cars and ambulances used in response and rescue efforts.

South Region crews also led convoys to New York City to transport light towers. Maintenance Supervisor Pete Celentano and Crew 413 Supervisor Don Bourne led ten NJDOT trucks from Ground Zero to New Jersey's Demobilization Center in Lakehurst.

- **Motor Vehicle Services**

We expedited permits that enabled oversized vehicles to cross bridges with emergency equipment.

- **Transportation Systems Planning**

In response to a single occupant vehicle ban at the Lincoln Tunnel and other closings, NJDOT employees manned a carpool hotline daily from 6 a.m. to midnight and from 8 a.m. to 9 p.m. on weekends. They offered general highway, bridge, transit and tunnel information to 1,200 callers each day.

Volunteering after hours

Numerous employees helped after work hours.

Some of us went to New York City to help in the search and rescue effort.

Others gave blood either at the Headquarters Blood Drive or in home communities.

We donated money to the American Red Cross Disaster Fund through work and home organizations. NJDOT and Motor Vehicle Services fund-raisers initiated by individual employees collected \$18,000 with Credit Union matching funds.

We collected clothing and hygiene supplies with the community-based groups.

Central Region Project Engineer Al Brenner and Area Supervisor Jim Farrell were at the New Jersey Urban Search and Rescue Unit Headquarters in the Jacob Javits Staging Center for Ground Zero in Manhattan. Brenner, an engineer on the team and Jim Farrell, who brought four trucks into Ground Zero, were among the 25 NJDOT employees who were involved in the logistics of cleaning the sidewalks of debris from the destruction of the buildings.



It's a new world

The transportation network run by the Port Authority of New York and New Jersey has withstood the immediate aftermath of the attack at its center.

One month after the terrorist attacks the Lincoln and Holland tunnels and the rest of the region's transportation network have almost returned to their pre-September 11 traffic patterns.

But things have changed. Airlines and Amtrak now require more passenger identification and are on heightened security. Emergency Service Patrols have been expanded on state roadways. NJ TRANSIT, running at capacity even on its new Hudson-Bergen Light Rail system, will add ferry service from New Jersey to New York City to try to make up for the destroyed PATH service to lower Manhattan.

We face new commuter patterns in some areas as many New Yorkers have been reassigned from destroyed WTC offices to temporary or permanent offices in New Jersey.

Document checks for driver licenses are more thorough and a new digital licensing system has been expedited. New Jersey has proposed legislation for an Emergency Management National Compact to provide or receive disaster relief. We have a new state Cabinet-level post, Coordinator of Recovery and Victim Assistance, headed by Lillian Borbone.

The terrorist attacks on the WTC have had profound and dramatic impacts on transportation in New Jersey and, indeed, the entire New York metropolitan region.

In our response to the September 11 attack we and our transportation partners have proven that we have the heart, the energy and the talent to meet our future challenges, including remedying the devastating damage to our region caused by the attack, to continue to move people and goods safely and efficiently in New Jersey.

Maritime Resources

New Jersey's \$50 billion maritime industry includes ports and terminals, boat manufacturing, ferry operations, government services and maritime environmental resources.

The office of Maritime Resources moved to NJDOT from the NJ Commerce and Economic Growth Commission in March 2000. NJ Maritime Resources was established in 1995 to provide interagency support, program planning and policy recommendations to the Governor and the Legislature.

As a part of NJDOT, Maritime Resources supports technology research and development, investigates innovative dredged material management technologies to ensure a balance between development and protection of maritime ecosystems and the growth of a marine transportation system integrated into the state's overall transportation and construction planning.

Ports and Freight

"Portway" is the term for a series of projects that will strengthen access to and among the Newark-Elizabeth air and seaport complex, intermodal rail facilities, trucking and warehouse facilities and the region's highway system.

<div> <div>PORTWAY</div> <div>COMPONENTS</div> </div>			
PROJECT (South to North)	LEAD	STAGE	COST (in million's)
EXPRESS RAIL FLYOVER	PANYNJ	Construction	\$ 48.00
PORT STREET Corbin St. to Doremus Ave.	PANYNJ/NJDOT	Planning	\$ 5.00
DOREMUS AVE. BRIDGE over Oak Island Yards	NJDOT Project Management	Construction	\$ 32.00
DOREMUS AVE Wilson Ave. to 1 & 9 T	NJDOT Project Management	Final Design	\$ 25.00
PHASE I New 1 & 9 (T) and Central Ave. Interchange Central Avenue Pennsylvania Avenue Fish House Road New Road from St. Paul's Ave. to Croxtan Yard.	NJDOT Project Scope Development	Feasibility Assessment	\$300.00
ROUTE 7 WITTPENN BRIDGE replacement	NJDOT Project Management	Final Scope Development	\$ 350.00
CHARLOTTE & TONNELE CIRCLES Interim Improvements	NJDOT Project Management	Final Design	\$ 16.00
ROUTE 1 & 9 (T) over St. Paul's Avenue	NJDOT Project Management	Final Design	\$ 192.00
new Interchange with NJ Turnpike 1 & 9 (T) and Doremus Ave Intersection New bridge over Passaic River	NJDOT Project Scope Development	Feasibility Assessment	To be determined
PORTWAY EXTENSIONS	NJDOT Mobility Strategies	Concept Development	To be determined

Experiments

Electric-powered vehicles

In the interest of clean air and lessening our dependency on fossil fuels, NJDOT participates in a variety of programs with universities, technical institutes and industrial and private groups to develop alternative powered vehicles.

In 1997 the electric car "Power Commute" project allowed train commuters at Woodcrest, Moorestown and Princeton stations to drive electric cars from the station to their offices. The "take the train to the (electric) car" project is based at Trenton Train Station. NJDOT and the Transportation Management Associations (TMA) are partners in the Capital Connector five-car experiment.

Passenger cars that use fuels other than gasoline have been used for more than a century. The Woods Motor Vehicle Company of Chicago became the first American manufacturer of electric motor vehicles in 1896. The Honda Motor Company introduced an electric car in 1996. The same year NJDOT was selected to participate in a federally-sponsored project of the Advanced Research Projects Agency to test and evaluate the use of specially-fitted electric-powered vehicles.

By 1999 the New Jersey Venturer electric vehicle won the Engineering Excellence Award and the Green Car Award in the Northeast Sustainable Energy Association's Tour de Sol rally. Fuel cells produce electricity for an electric motor without releasing any harmful emissions.

In April 2000 the Department had developed a clean air vehicle that would produce hydrogen-on-board. Sodium borohydride, a chemical used in paper after recycling releases hydrogen for the fuel cell power supply. Called the NJ Genesis, NJDOT transferred the project to Team New Jersey, which includes Rutgers University, Rowan University and various private corporations. The Team hopes to enter Genesis in a future Tour de Sol competition.

Bernie O' Keefe,
manager of the
Capital Connector
project, and
Manager Don
Borowski of the
Bureau of
Transportation
Technology get
ready to drive
Solectria, the
electric car.



Foot power

NJDOT partnered with the Department of Environmental Protection, local businesses, school children and countless volunteers to make the Pemberton Bike Trail in Burlington County a reality in July 1999. Under the state's "Rails to Trails" projects NJDOT provided \$50,000 for the materials, labor and trail markers to cover the abandoned railroad tracks and make them suitable for bicyclists.

More than 100 miles of bike paths were constructed in the state from 1999 to 2001, and plans are laid for the next 1,280 miles until the goal of 2,000 miles is achieved by 2008.

Spring 2001 brought NJDOT's announcement of a new biking initiative: the creation of a 240-mile bicycle route from High Point to Cape May. New Jersey's first touring route will begin in Sussex County, pass through ten counties and 54 municipalities, and end at New Jersey's most southern point.

The fiscal year 2000 Transportation Trust Fund provided \$6.7 million in Local Aid monies to support projects that will result in either the creation of new independent bicycle facilities or the restructure of an existing roadway for bicycle compatibility. The fiscal year 2001 Transportation Trust Fund provides \$9 million for bicyclists in 18 counties and 45 municipalities.

Additionally, the fiscal year 2001 Transportation Trust Fund will fund projects in 53 municipalities in 20 counties with \$5 million for Pedestrian Safety Programs, \$3 million more than in FY 2000.



The mission of the New Jersey Pedestrian Task Force is to support walking as a safe, convenient and sustainable form of transportation that increases our state's livability, enhances public life and improves public and environmental health. We seek to improve New Jersey's pedestrian environment through education, collaboration, policy, activism and advocacy.

NJDOT's Office of Bicycle and Pedestrian Programs has partnered with representatives from transportation management associations, metropolitan planning organizations, the Division of Highway Traffic Safety, NJ TRANSIT, the Office of State Planning and the Department of Health and Senior Services to serve on the Pedestrian Task Force. In 2001 they will promote "Creating More Walkable Communities" a speaker's program/media presentation targeted to local officials and citizens groups.

NJ TRANSIT in 2001 became the nation's largest statewide public transportation system for bus, rail and light rail services for 372,000 daily commuters on 240 bus routes, two light rail lines and 12 commuter rail lines. There are 162 rail stations, 26 light rail stations and more than 17,000 bus stops linking major points in the tri-state area: New Jersey, New York and Pennsylvania.

NJDOT and NJ TRANSIT have partnered with eight other state agencies to stimulate economic activity around bus or rail facilities.

Transit villages can benefit virtually everyone in a community, especially commuters, residents and business people. Through the Transit Village Initiative, municipalities can take advantage of opportunities for economic development partnerships with a number of state agencies.

It all adds up to a better quality of life for residents in the municipality. Some benefits of becoming a transit village are evident in the enhancements to the community of South Orange in Essex County. Landscaping and streetscaping now frame the central business and rail station areas; the parking has been expanded for commuters, shoppers and residents; and a cultural arts/conference center is planned. Other villages in the pilot project are Pleasantville, Rutherford, Morristown and South Amboy.



NJDOT redesigned nine bike route brochures in late 2001 with updated route maps and color photography. This is a popular route in the Pine Barrens.

'There is no ending to our transportation journey, just an endless vista of new beginnings'*

Employees

People make the difference between a system that exists and one that excels; they make it possible to meet future challenges and increased transportation demands in New Jersey.

NJDOT's Employee Support and Human Resources divisions are developing tools to make employees full partners in their career development. They are designing programs to identify employees' core skills and functional expertise. They are targeting gaps between the employees' competencies and the demands of the changing technology and transportation needs. The gaps will be closed through a combination of career counseling, training, education and career development programs.

At the same time, employees can take charge of their careers by focusing on skills they need and by choosing relevant training and educational programs. Basically, they can grow their own careers and create opportunities for advancement.

An example is the demand for auditors. By taking 21 credits in accounting (many courses are provided at NJDOT) participants in this program can move from technical titles to auditors in just a few years.

To address the need for leadership, especially facing "baby boomer" retirements, NJDOT has initiated a succession planning program. Employees can volunteer for this program, which will assess them and identify ways for them to increase their experience or competency in critical areas.

Working in partnership with the Department of Personnel, the Succession Planning Steering Committee, set up in 2001, will help determine the competencies required for the vacant positions and how to develop those abilities on staff.

DOTRA

NJDOT retirees celebrated the tenth anniversary of the Department of Transportation Retirees Association (DOTRA) at a luncheon on June 6, 2001. Organized after many NJDOT employees chose to retire after a massive downsizing in 1991, DOTRA has grown from 130 to 400 members.

An active organization, its members are still involved in Department activities. Several members served on the planning and fundraising committees for the Employee Memorial.

*New Jersey First: A Transportation Vision for the 21st Century

CATEGORY	MALES														FEMALES													
	WHITE		BLACK		HISPANIC		ASIAN		AMERICAN INDIAN		MINORITY		TOTAL	WHITE		BLACK		HISPANIC		ASIAN		AMERICAN INDIAN		MINORITY		TOTAL		
	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT	#	PCT		
OFFICIALS/ADMINISTRATORS	211	81.5	5	1.9	0	0.0	5	1.9	0	0.0	10	3.9	221	85.3	37	14.3	1	0.4	0	0.0	0	0.0	0	0.0	1	0.4	38	14.7
PROFESSIONALS	857	57.8	75	5.1	21	1.4	204	13.8	1	0.1	301	20.3	1158	78.1	258	17.4	46	3.1	6	0.4	13	0.9	1	0.1	86	4.5	324	21.9
TECHNICIANS	680	69.6	79	8.1	13	1.3	7	0.7	0	0.0	99	10.1	779	79.7	139	4.2	53	5.4	6	0.6	0	0.0	0	0.0	59	6.0	198	20.3
PARAPROFESSIONALS	108	23.8	15	3.3	2	0.4	1	0.2	2	0.4	20	4.4	128	28.2	193	42.5	101	22.2	23	5.1	8	1.8	1	0.2	133	29.3	326	71.8
OFFICE/CLERICAL	55	7.8	19	2.7	4	0.6	0	0.0	0	0.0	23	3.3	78	11.1	415	59.1	182	25.9	25	3.6	2	0.3	0	0.0	209	29.8	624	88.9
SKILLED CRAFTS	618	84.5	77	10.5	15	2.1	9	1.2	0	0.0	101	13.8	719	98.4	11	1.6	1	0.1	0	0.0	0	0.0	0	0.0	1	0.1	12	1.6
SERVICE-MAINTENANCE	457	77.9	85	14.5	16	2.7	1	0.2	0	0.0	102	17.4	559	95.2	17	2.9	10	1.7	1	0.2	0	0.0	0	0.0	11	1.9	28	4.8
TOTAL	2986	57.5	355	6.8	71	1.4	227	4.4	3	0.1	656	12.6	3642	70.1	1070	20.6	394	7.6	61	1.2	23	0.4	2	0.0	480	9.2	1550	29.9

Full-time NJDOT employees are listed by professional, gender and ethnic categories.



Shelly Rolon:
Secretarial Assistant 3 (MVS) "Do it with pride and it will reflect on you forever."



Wilma Gruzlovic

"The training they did at always put their people first at DOT, and I think that has helped — but some stayed even though they weren't getting promotions. They felt as though DOT cared for them."

— Wilma Gruzlovic, former secretary who began state service in 1953 and retired in 1991. She serves as DOTRA Historian.



Binh Vo: Principal Engineer
"There is no 'I' in 'team.'"

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PEOPLE the transportation connection is a publication of the NJDOT Communications Office. It was produced by the Public Education and Marketing staff, managed by **Camille Sinclair**. **Edyth Hetman** did the research and copywriting, **Glenn Catana** the creative design and production and **Frank Bridgewater** the original cover design. **Judi Shanoskie** was chief proofreader and **Barbara Fisher** and **Debbi Hutton** supplied creative support. **Jeff Maclin**, director of Communications, and **Andras Fekete**, and **Lauralee Rappeleye-Marsett**, of Environmental Services provided professional support.

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