

The Wanaque South Project — New Jersey's showpiece for joint use of right of way

by Charles M. Millspaugh



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The Hackensack Water company, together with its wholly-owned subsidiary, Spring Valley Water Company, has served an ever-growing population since its inception more than 116 years ago. Over the years the steadily increasing population has necessitated long range planning to fulfill the demands for more water.

The company has been able to meet those demands by building new reservoirs and new filtration and pumping plants. The first reservoir construction in 1902, called the Oradell Reservoir, is now one of the four reservoirs that supply water to more than 800,000 residents in 60 northeastern New Jersey communities and 55,000 residents in Rockland County, New York.

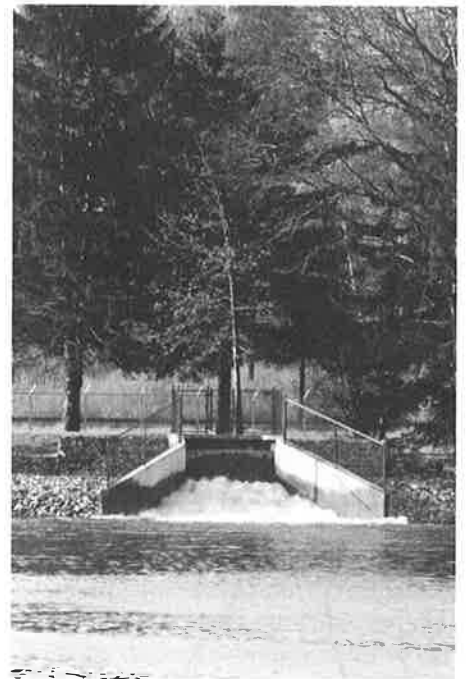
However, today there is no further potential to develop new reservoirs in the Hackensack River basin to serve the growing population. The company has solved this problem by joining forces with the North Jersey District Water Supply Commission, a state agency based in

This project, the largest private-public venture of this kind in the Northeast, saved over \$7,000,000 by using longitudinal rights of way.

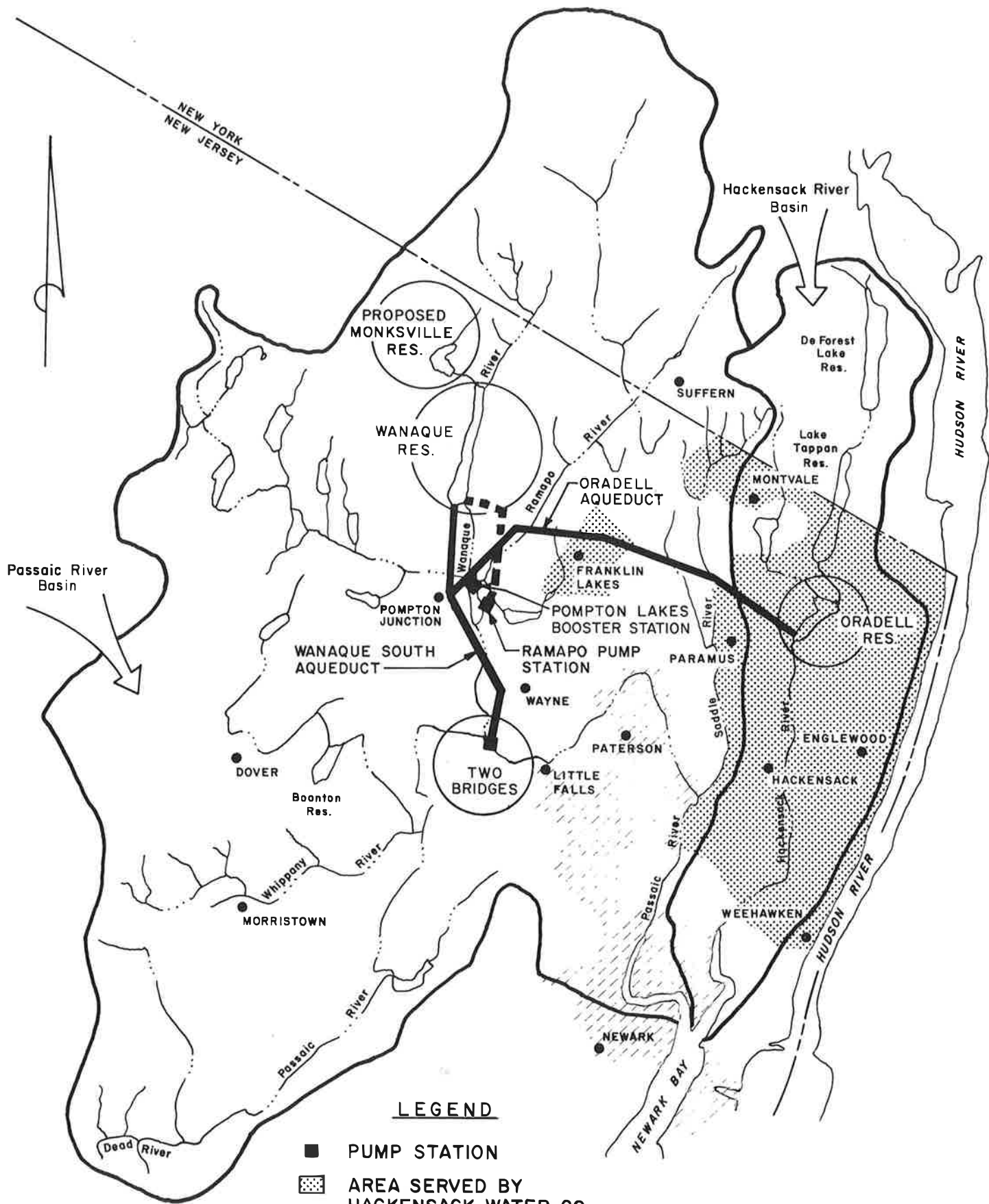
Wanaque, New Jersey. The two partners have designed a major water supply and diversion project called the Wanaque South project to add 79 million gallons of water a day (MGD) to the two partners by diverting water from the Passaic River Basin. This new supply will be shared equally between the two partners. When completed in 1987, the project, which is the largest of its kind ever to be built in New Jersey, is expected to meet the water supply needs of the area's population until the year 2010.

The Wanaque South Project is a two-stage endeavor (see map). Phase I consists of the Oradell Aqueduct, a 17-mile pipeline which transports water from North Jersey Commission's Wanaque Reservoir to the Oradell Reservoir. The 75 MGD Pompton Lakes Booster Pump Station, wholly owned by Hackensack Water Company, pumps the water through the aqueduct. It can transfer water from both the Wanaque South Aqueduct and the North Jersey Commission's Ramapo pipeline.

Phase II consists of four components. First, the Wanaque South Pump Station is under construction at the confluence of the Passaic and Pompton Rivers in Passaic County. This will pump up 250 MGD of water from the Passaic and



Outflow of the Oradell Aqueduct, where 1.6 billion gallons of water have already emptied into the Oradell Reservoir.



LEGEND

- PUMP STATION
- ▨ AREA SERVED BY HACKENSACK WATER CO.
- ▧ AREA SERVED BY NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION

0 1 2 3 4 6 8
SCALE IN MILES

COMPONENTS OF THE WANAQUE SOUTH PROJECT

Pompton Rivers. Second, the Wanaque South Aqueduct will transfer this water to the Wanaque Reservoir for storage. Third, North Jersey Commission's existing Ramapo Pump Station has been upgraded by 50 percent to 150 MGD. It transfers water to the Wanaque Reservoir via an existing North Jersey Commission transmission main. Finally, the seven billion gallon Monksville Reservoir will be constructed at the northern end of the Wanaque Reservoir in Ringwood and West Milford.

The partnership

What makes this project unique is that as far as is known it is the first time in the northeast that an investor-owned water company has teamed up with a governmental agency on a project of this size. The privately owned Hackensack Water Company and the North Jersey District Water Supply Commission are following the precedent set in Arizona's Salt River Project.

The partnership has three key agreements. The first is that of Co-Tenancy. Ownership rights are spelled out in this agreement. The second is the Engineering/Construction of project work. Finally, the Operating Agreement specifies who will operate and maintain the facilities after construction is completed.

The Hackensack Water Company is responsible for the engineering and construction of the new facilities and the upgrading of existing facilities.

It is sole owner of the Oradell Aqueduct and the Pompton Lakes Booster Pump Station (Phase I components). The North Jersey Commission is the operating agent for the completed project facility. Together, the two companies share ownership of the Wanaque South Pump Station, the Wanaque South Aqueduct, Ramapo Pump Station, and Monksville Reservoir (Phase II components).

Easement acquisition

With 28 miles of easements and/or right of way to acquire, it was necessary to deal with many types of property owners. Corporations, municipalities, state and local government agencies, railroads, and individuals all owned land along the proposed route.

The first step was to acquire an easement from the New York Susquehanna and Western Railway company which



Railroad crossing of 102-inch pipe in Wayne, NJ.

owned ten of the 17 miles of right of way needed. The Hackensack Water Company was able to negotiate an option for an easement along the needed ten miles of right of way, which constituted 59% of the easement needed for construction to begin. An additional seven miles of right of way needed. The Hackensack Water company was able to negotiate an option for an easement along the needed ten miles of right of way, which constituted 59% of the easement needed for construction to begin. An additional seven miles of right of way were acquired for Stage II Wanaque Aqueduct. This resulted in a significant cost savings and also reduced disruption for residents along the route.

The remaining easements took more time to acquire. Individual homeowners, corporations, and municipalities who owned land needed for the aqueduct all had to be identified. Once identified, each was contacted by the project negotiator, who explained the project, showed the owner how the route affected his or her property and negotiated the various property rights necessary for the project. Ninety-two parcels of real estate were affected. Nearly all (91 percent) of the permissions were acquired by negotiations except for eight parcels which were condemned.

Problems and solutions

Out of this large number of easements, one would expect a certain number of problems obtaining permission or restrictive conditions. For example, easements from the New Jersey State Highway Authority stipulated that the traffic could not be disrupted on the Garden State Parkway or Route 17. This necessitated an engineering solution, which was simply running a tunnel under the roads for the pipe. Another site called for cutting around behind a group of apartment houses to reduce disturbance to the residents. This had the added benefit of reducing the amount of pipe needed for the project.

Residents of Riverdale were concerned that local youths would use the construction area for a dirt-bike path upon completion. Promises to restore the site's vegetation and terrain to as close as practical to its original condition resolved the issue. Unfortunately, not all problems were resolved so easily. The residents of Ridgewood set a portion of the project back for a year because of their opposition.

The acquisition of the easements solved other problems. One money-saving feature of the New York Susquehanna Western Railway easement was that its Ramapo River Bridge was available to carry the pipeline. Instead of having to get dredging and other permits to run the pipeline under the river, a 60-inch diameter steel pipe in three 120-foot sections was placed along side the bridge. As far as we know, this is the largest freespan of this diameter pipe in the East.

The construction phase

During the preliminary planning, permit requirements were tabulated and evaluated for availability and anticipated effort, as well as the time required to obtain them. The most extensive permit procedures were those of the U.S. Army Corps of Engineers. The last of these permits, for the Monksville Reservoir, was obtained March 8, 1985, after a nine-month review period.

Construction will be completed by 1987. The Monksville Reservoir will ensure that the anticipated yield of 79 MGD will be fully obtainable. Construction began in March, 1985, with com-

pletion anticipated in the third quarter of 1987.

Project benefits

The Wanaque South Project will benefit more than 1.5 million residents of Hudson, Bergen, Passaic, Essex and Union Counties served by the Hackensack Water Company and the North Jersey Commission. It will insure that this area will have an ample source of water until at least the turn of the century.

The use of longitudinal occupancy of right-of-way has been important to this project. Running parallel to the New York Susquehanna and Western Railway right of way are overhead power transmission cables. The sub-surface portion of the right of way is utilized by AT&T Long Lines division, sewers, storm drainage and water lines along with the Hackensack Water Company facilities.

This project has also shown the way to significant savings. Savings from the use of longitudinal right of way came to over \$7,000,000 dollars. Savings from pre-purchasing pipe materials were \$2,865,000. Savings from the usage of the new Roller Compacted Concrete technology for the Monksville Dam are estimated at \$5,500,000. Additional savings were realized when the Hackensack Water Company issued tax-exempt insured bonds and got permission to earn return on their investment during construction. Future water and other projects will benefit from the innovations that made these savings possible, as will the customers of the Hackensack Water Company.

Perhaps the greatest benefit of the Wanaque South Project is that it proves that state agencies and private businesses can work together for the good of the region. Many private companies, municipal and regional agencies will find that they need to work together in the future to provide adequate water for larger area.

The cornerstone has now been laid for the New Jersey Statewide Water Supply Master Plan. In the words of New Jersey Governor Thomas Kean at the dedication of the Oradell Aqueduct, "The completion of this aqueduct sets off a series of projects that will... meet the needs of our North Jersey population well past the turn of the century."



Thomas J. McKeon, director of special construction projects for Hackensack Water Company; Paul Yonge, IRWA President of Chapter 18; Carroll Keck, then IRWA International Vice President; and Charles M. Millspaugh, IRWA Chapter 18 member; pause in Pompton Lakes to examine newly constructed pumping station, before reboarding the train for the return trip to Midland Park.

Chapters 15 and 18 take rail tour of Wanaque South Project

The joint meeting of the IRWA New Jersey Chapter 15 and IRWA New York Chapter 18 was held this spring aboard an observation car on the New York Susquehanna & Western Railway.

Sponsored by Hackensack Water Company and coordinated by Charlie Millspaugh, the 10-mile railroad tour was intended to give chapter members a first hand look at a portion of the right of way used for the Oradell Aqueduct — a 17-mile subsurface pipeline in New Jersey.

"As the population continues to grow and land becomes more scarce, the joint use of longitudinal occupancies of railroad right of ways will become more prevalent in our industry," Millspaugh explained to more than 30 participants who attended the meeting.

The trip began in Midland Park, in Bergen County and concluded in Pompton Lakes in Passaic County.

From the glass-paneled observation car, IRWA members were able to inspect the right of way used for the installation of the aqueduct and the restoration which was performed after construction was completed.

Multiple uses of this right of way included: electrical, overhead transmission wires, communication cabling, sewer lines, drainage and water through the newly installed Oradell Aqueduct.



102-inch pipe placed along railroad right of way during construction of aqueduct.