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Interim Report
Of The
Interdepartmental Committee
On
State Water Supply Needs

July, 1974

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STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY
RICHARD C. LEONE, TREASURER

July, 1974

The Honorable Brendan T. Byrne
Governor, State of New Jersey

Dear Governor:

I am pleased to transmit, on behalf of the Interdepartmental Committee on State Water Supply Needs, recommendations for the full distribution of water from the Round Valley and Spruce Run Reservoir Project.

The Committee has concluded that construction of a raw water outlet pipe from Round Valley Reservoir to the South Branch of the Rockaway Creek is in the best interest of the State. The Committee recommends a \$1.2 million appropriation to support a two year State Water Supply Study to provide an updated, comprehensive base for making future water supply decisions.

Respectfully submitted,

Richard C. Leone, Chairman
State Treasurer

Comm. David Bardin
Dept. of Environmental Protection

Comm. Patricia Sheehan
Dept. of Community Affairs

Pres. Anthony Grossi
Public Utilities Commission

Comm. Joseph Hoffman
Dept. of Labor and Industry

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Introduction

The Round Valley and Spruce Run Reservoir system, located in Hunterdon County, holds enough water to provide a sustained supply of 160 million gallons per day at the Bound Brook Diversion Point on the Raritan River. Of that amount, 80 million gallons per day is now in dead storage and cannot be utilized in the water short areas of the State. The problem of getting the maximum amount of water out of the Round Valley Reservoir has frustrated several administrations; each has been unsuccessful in getting the water to areas of need in the Raritan and Passaic River Basins. Legal, fiscal and administrative considerations have thwarted every effort to build and operate an outlet system, and the problem becomes more acute each year as water use increases and the prospect of potential drought becomes more menacing.

The Interdepartmental Committee on State Water Supply Needs was established on March 22, 1974 by Executive Order No. 3 (See Appendix I) "to make recommendations including alternatives for financing, construction, operation, and maintenance of water supply facilities and distribution systems designed to assure a continued adequate water supply to meet the needs of the State to the year 2000." The Interdepartmental Committee is submitting to the Governor this preliminary recommendation for the first

phase of water supply distribution from the Round Valley and Spruce Run Reservoirs Project. The recommendation is a limited one; it proposes tapping the remaining supply potential of the Round Valley and Spruce Run Project while preserving for more comprehensive analysis decisions on the allocation of northern New Jersey's precious water supplies.

History: Background and Issues

In 1958, the New Jersey Water Bond Act and the New Jersey Water Supply Law were passed by the State Legislature and endorsed by the citizens of the State in a \$45,850,000 bond referendum. The result was construction of the off-river Round Valley Reservoir (55 billion gallons storage) and the on-river Spruce Run Reservoir (10 billion gallons storage) near the Town of Clinton in northern Hunterdon County. (See Appendix II for a map of the region and the location of the proposed Round Valley outlet pipeline.)

Although the 1958 Statute established a major State role in the development and financing of new water resources, substantial amounts of water (80 million gallons per day) have not been available because the necessary raw water outlet pipeline has not been constructed. This dilemma - the existence of a reservoir without the necessary potable water transmission lines - was addressed by the State Legislature in 1962

when it adopted the "Water Transmission Facilities Act". The intent of the Act was "to foster and promote by all reasonable means the prompt, efficient, and economical transmission, treatment, filtration, distribution, and use of the water supplies acquired and developed by the State". The North Jersey District Water Supply Commission, under the authority of the "Water Transmission Facilities Act", was unsuccessful in its attempts to construct a potable water pipeline to serve the municipalities with need. Although contracts with municipalities were actually signed and upheld by the courts, and North Jersey was prepared to construct the pipeline, the municipalities involved prevailed upon the State Water Policy and Supply Council and in 1972 the Council refused North Jersey the permission it needed to divert the water out of the Raritan Basin and into the Passaic Basin.

The State has contracts with two private purveyors, Elizabethtown and Middlesex Water Companies, which are purchasing virtually all water presently released from the reservoirs at an average cost of \$47.50 per million gallons. The revenues from the sale of this water are insufficient to meet annual payments of principal and interest chargeable to the bonds issued to finance the reservoirs. The difference between annual debt service requirements and the revenues raised from the sale of Round Valley and Spruce Run waters is being satisfied by annual State appropriations. As of today, approximately \$2 million has been collected

above and beyond operating costs and applied against principal and interest, while the State has appropriated some \$27 million for repayment of bonds. Thus a deficit of \$25 million exists between the amount the State has paid off on the bonds and the amount of revenues from the sale of the water that has entered the Treasury (See Appendix III.)

Under the 1958 law and the administrative cost recovery mechanism, the cost of the reservoirs plus interest must be reimbursed to the State Treasury. Even assuming full subscription of the entire amount of Round Valley and Spruce Run water, revenues received from the sale of reservoir water (even at increased rates) will be unavailable as a pledge behind water supply projects (at least through 1990), because of the existing \$25-million-deficit claim.

Basis for Action

In the last 20 years water purveyors have been unable to develop new sources of supply sufficient to keep pace with an ever increasing demand. As a result, in 1973 the major purveyors in the northeastern part of the State provided 395 MGD of surface supplies to their customers while their safe sustained yield on the 1960's drought basis was only 366 MGD*, a deficit of 29 MGD - which is equivalent to the

* Safe sustained yield is defined as the amount of water that can be developed and delivered on a continuing basis over a drought period. In this case, the 1960's drought is the drought of record. Appendix IV compares safe sustained yield of various reservoir systems with quantities of water supplied by major purveyors in each year since 1962.

supply required by a population of 190,000 people. (It should be noted, however, that if we looked only to the second-worst drought - that of the 1930's - there would have been a calculated yield of 396 MGD and so essentially no deficit would exist for 1973 surface water use.

Future projections of population and per capita use which appear in Appendix V forecast a considerable growth in demand, and a widening of the demand deficit.* Based upon a conservative estimate of growth in surface water demand, 7 MGD per year, the demand deficit based on the 1960's drought will balloon to about 55 million gallons per day by the summer of 1977 when the Round Valley pipeline could be operational. The impact of a drought comparable to that experienced in the 1960's would be of similar magnitude. In that drought, water was rationed, some businesses were unable to operate and temporarily closed, many residential and industrial wells ran dry, and water pressure was very low for both supply and emergency purposes. In addition, the recreational value of Spruce Run Reservoir would be lost as the water level would be drawn out completely after the first summer of drought.

In the recent past, purveyors have acted to eliminate deficits in two ways. First, they have taken advantage of plentiful surpluses which have accompanied the wet years since 1967 and have over-drafted their systems. This approach

* Appendix V demand forecasts have no definitive official status.

will not be available during the driest years when the reservoirs must be operated within the bounds of their safe sustained yields. The second approach purveyors have adopted to minimize deficits is to arrange interconnections with Raritan Basin systems so that Round Valley and Spruce Run water could be imported to the northeastern part of the State. In the immediate future this approach represents the only sound one for assuring adequate supplies during dry weather periods.

The only significant reserve of water for northern New Jersey which could be made readily available is the additional 80 million gallons per day in Round Valley, accessible only via an outlet pipeline - a 3.7 mile pipeline from the North dam of Round Valley to the South Branch of Rockaway Creek, near White House Station, to be constructed at a cost of \$15 million. The construction of the outlet, estimated to take between 18 and 24 months, would provide the following specific benefits:

- The pipeline would provide a vital, additional 80 MGD to be utilized as protection if a drought occurs in next several years;
- The pipeline would maximize the flexibility the State could have with regard to the actual distribution of water, even in the absence of a drought;
- The pipeline would represent the most economical*

* This project would provide 80 MGD for an additional capital investment of \$15 million or about \$200,000 per million gallons in additional capital costs. Other projects to provide new supplies approach \$900,000 per million gallons at this time because they require investment for both reservoir and pipeline construction.

The \$15 million estimate is based on projected price increases in material and construction costs over the next two years.

and expeditious project that could be undertaken to make such a large incremental block of water available for use in northern New Jersey, and;

- The construction of pipeline would not predetermine any future State water supply development projects (example Tocks Island.)

The Interdepartmental Committee concludes that the Round Valley outlet pipeline should be constructed promptly.

In reviewing options for financing the Round Valley outlet pipeline, the Committee notes that the dedication of revenues from the sale of reservoir water is precluded due to previous legal and fiscal decisions. Other alternatives reviewed by the Committee for financing the outlet pipe included:

- Direct appropriations;
- Lease/Purchase agreement with a private concern;
- Issuance of general obligation bonds, and;
- Dedication of revenues from the sale of State developed waters and from existing annual water diversion fees to support revenue bonds.

In formulating its recommendations, the Committee examined in some detail the fourth alternative, dedication of revenues from the sale of State developed waters and from existing annual surface water diversion fees to support revenue bonds. This approach is attractive because it would involve the establishment of a self-sustaining financial base for future State water supply development projects. However, because of the broad implications of this approach the Committee concluded that more thorough and detailed

analyses would be required, and this could best be accomplished as part of the Committee's long range (March 22, 1975) responsibility to establish a State Master Plan for Water Supply through the year 2000.

The issuance of general obligation bonds was considered and set aside for two reasons. First, voter approval could not be obtained prior to November, 1975. Furthermore, the precise size and purpose of the bond referendum is uncertain, pending the completion of the State Master Plan for Water Supply.

The basis for selection of the direct appropriations approach is discussed in the concluding section which presents the recommendations of the Interdepartmental Committee.

Recommendation

The Interdepartmental Committee on State Water Supply Needs recommends that:

- For Fiscal Years 1976 and 1977, the Department of Environmental Protection budget requests should include \$15 million, the amount needed to construct the Round Valley outlet pipe. This recommendation, however, is subject to further examination of the possibility of having the pipe built by a private concern under a lease-purchase arrangement.

We further recommend that the Legislature be asked to act this fall to authorize the project, so that work can go forward before July 1, 1975.

- For Fiscal Year 1975, a supplementary Department of Environmental Protection budget request in excess of

\$1 million* be made to the Legislature to provide funds for a State Water Plan for New Jersey, which will take at least two years to complete.

The Committee studied various alternative ways of building a pipeline to bring the water from Round Valley to alternative distribution points. This solution represents, we believe, the simplest and most straight-forward way to make available water which was promised many years ago.

We believe that its modest scope preserves nearly all options for future water supply development. We have tried then to serve two objectives - to move the water, at last, to a place where it can be used by residents of New Jersey and to keep open future options at this early stage in analysis of the State's needs.

The Committee construed its initial mandate narrowly. We perceived our task to be the development of a short-run and practical plan for fulfilling the long promised full potential of the Round Valley and Spruce Run Reservoir Complex. We believe that we have met that mandate in this report.

While a number of questions regarding the eventual distribution and cost of the water are not precisely answered, the range of likely outcomes is narrow. The pipeline we propose will get the water out at a moderate

* The Department of Environmental Protection is in the process of developing a detailed scope of work for the study and will present a precise cost estimate after August 1, 1974.

cost, making good the initial investment of a much larger amount of public money to construct the reservoir project. The task of the Department of Environmental Protection and the PUC is to work out appropriate license and price mechanisms for those private and public purveyors who wish to retail the water supplies made available by this pipeline.

The Interdepartmental Committee will not at this time recommend a specific arrangement for distributing the new increment of water. The Elizabethtown and Middlesex Water Companies may appear to be natural beneficiaries because of their locational advantages. But there are areas in northern New Jersey, specifically Morris County and northern Bergen County, which need new supplies, but would not significantly benefit from Round Valley water unless new water transmission lines are built. Alternative routes for transmitting the water to the Passaic River Basin should also be analyzed in detail for engineering, economic and environmental feasibility before the final configuration for distribution can be recommended. The two and one-half years of lead time needed to make the outlet pipe operational will be used to study alternative patterns for distribution of the uncommitted water supply from Round Valley and for charging for the general drought-protection benefits.

New Round Valley water will be marketed according to

wholesale rates and conditions of sale negotiated by the Department of Environmental Protection with contracting purveyors. (Though these rates will reflect the State's effort to recover capital outlay and operating expenses for the outlet system, the revenues may not be pledged to finance the pipeline.) The ultimate consumer price of the new water will be certified by the Public Utilities Commission after formal rate proceedings on the basis of cost experience and reasonable-return calculations.

The recommendation to conduct a State Water Plan is linked to immediate and long range concerns which the Committee is to answer by March 22, 1975. Preparation of the Plan should proceed in stages, the first report being timed to the March 22, 1975 obligations of the Inter-departmental Committee. Critical activities to be focused upon in the State Water Plan would include:

- A determination of future demand for water supply in New Jersey;
- Methods for conserving water resources, utilizing wastewater as a future source of water supply;
- Technical and economic analyses for alternative means of meeting future demand emphasizing continued development of surface water resources to serve northern New Jersey, and improved management techniques and controls to optimize use of southern New Jersey's ground water resources;
- The integration of New Jersey's intrastate water supply planning program with interstate water resources projects;
- Further integrating existing water supply systems into a manageable water supply network;

- Institutional and financial alternatives for the sound management and financing of State Water Supply projects in New Jersey including those financed and constructed by the State;
- An open planning process for participation by all governmental entities, as well as public and private organizations.

Policy oversight and guidance would be provided by the Interdepartmental Committee and the Department of Environmental Protection would manage and conduct the Water Supply Plan.

EXECUTIVE ORDER NO. 3

WHEREAS, the adequacy of water supply is of critical concern to this State and essential to the promotion of the public health, safety and welfare; and

WHEREAS, there is a continuing need for comprehensive and coordinated State action to assure that future water supply will be available to meet the needs of balanced State growth; and

WHEREAS, there is uncertainty concerning whether the existing and planned water supply facilities are sufficient to satisfy these demands; and

WHEREAS, the complexity and importance of these issues requires the creation of an Interdepartmental Committee on State Water Supply Needs charged with the responsibility to evaluate the State's water supply system and make recommendations for its improvement;

NOW, THEREFORE, I, Brendan T. Byrne, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the statutes of this State, do hereby ORDER and DIRECT:

1. (a) There is hereby created an Interdepartmental Committee on State Water Supply Needs (hereinafter sometimes referred to as the "Committee").

(b) The Committee shall consist of the Commissioner of the Department of Environmental Protection, the Commissioner of the Department of Community Affairs, the Commissioner of the Department of Labor and Industry, the President of the Board of Public Utility Commissioners, the State Treasurer, or their respective designees, and such other officers or persons as the Governor may by further order direct.

(c) The Chairman of the Committee shall be the State Treasurer.

(d) The Chairman and the members of the Committee shall serve without compensation, but shall be entitled to

reimbursement, within the limits of funds available therefor, for all necessary expenses incurred in the performance of their duties.

(e) The Committee shall meet at the call of the Chairman or of the Governor.

2. The duties of the Committee shall be:

(a) To conduct a thorough and comprehensive study of existing and planned water supply facilities and distribution systems, including the water distribution system for the Round Valley and Spruce Run Reservoir Project;

(b) To evaluate and assess the adequacy of the State's water supply facilities, distribution systems and policies to meet the needs of balanced State growth;

(c) To make recommendations which would discourage wasteful water use practices;

(d) To make recommendations including alternatives for financing, construction, operation and maintenance of water supply facilities and distribution systems designed to assure a continued adequate water supply to meet the needs of the State to the year 2000.

3. (a) The Committee is hereby authorized to call upon any department, office, division, bureau or agency of the State to supply such assistance, statistical data, material and other information or personnel as it deems necessary to discharge its responsibilities under this Order.

(b) Each department, office, division, bureau or agency of the State is hereby authorized and directed, to the extent not inconsistent with law, to cooperate with the Committee and to furnish to it such assistance, material and information as the Committee may request of it as necessary in the discharge of its responsibilities under this Order.

4. The Committee shall provide a report to the Governor on or before June 15, 1974 which shall include its recommendations for a complete system of water supply distribution for the Round Valley and Spruce Run Reservoir Project.

5. The Committee shall render to the Governor such interim reports as it may deem appropriate or as the Governor may request and, upon the completion of its work, which shall be completed on or before March 22, 1975, the Committee shall render a full report of its findings and recommendations.

6. This Order shall take effect immediately.

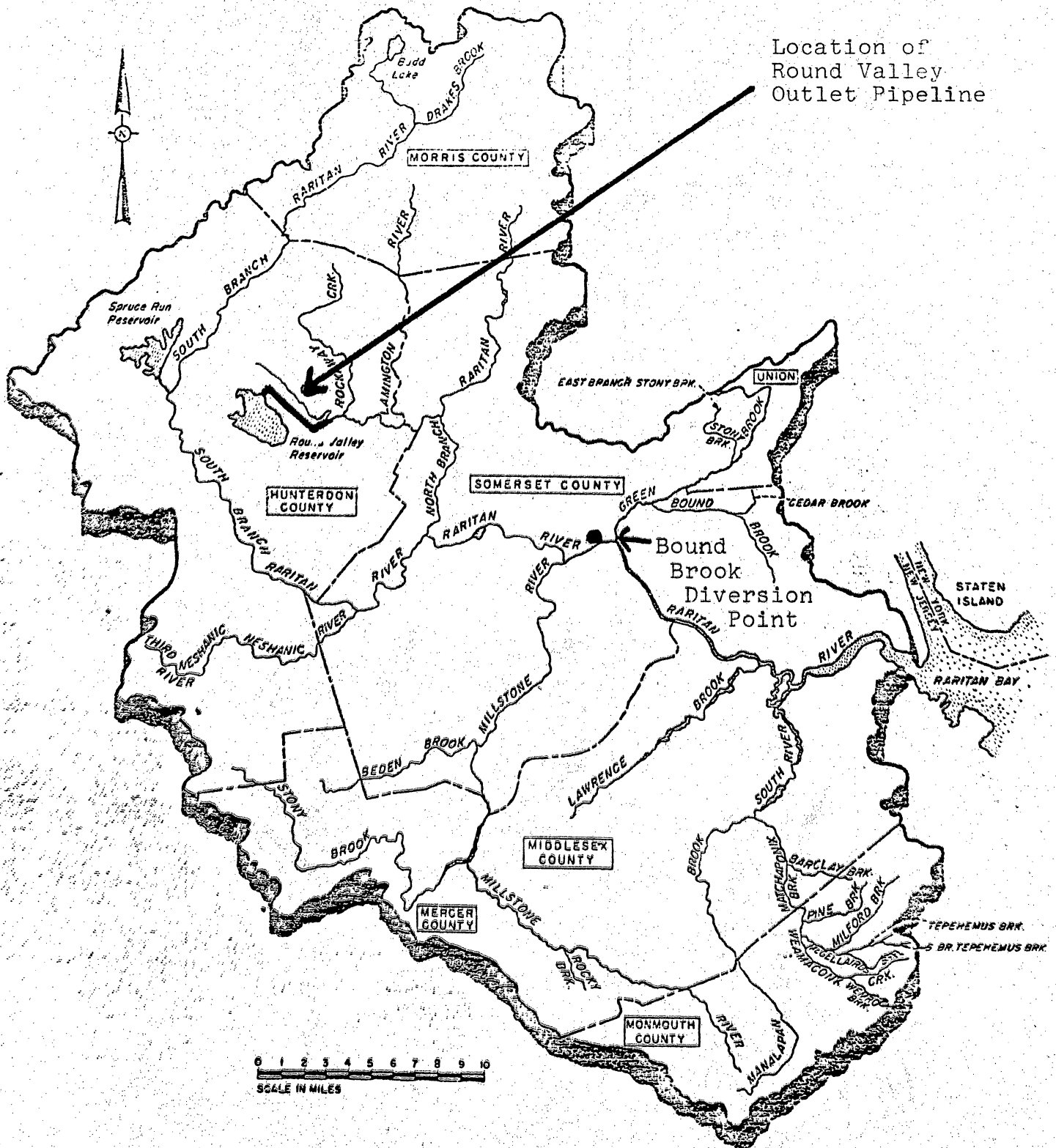
GIVEN, under my hand and seal
this 22nd day of March in the
year of our Lord, one thousand
nine hundred and seventy-four,
and of the Independence of the
United States, the one hundred
and ninety-eighth.

Governor

Attest:

Executive Secretary to the Governor

Location of
Round Valley
Outlet Pipeline



RARITAN RIVER BASIN MAP

REVENUES AND EXPENSES FOR
Spruce Run/Round Valley Reservoirs

1960 TO 1973

Fiscal Year	(1) Revenue From Sale of Water	(2) Operations Expenditures	(3)=(1)-(2) Net Revenue Returned To General Fund	(4) Repayment of Bonded Indebtedness	(5)=(4)-(3) Annual Shortfall of User Repayments As Compared To Bond Repayments
1960	----	----	----	\$ 708,583	\$ 708,583
1961	----	----	----	708,583	708,583
1962	----	----	----	1,278,681	1,278,681
1963	----	----	----	1,278,681	1,278,681
1964	----	----	----	1,537,131	1,537,131
1965	\$ 68,714	\$ 68,714	----	1,957,543	1,957,543
1966	349,045	349,045	----	1,929,975	1,929,975
1967	556,362	556,362	----	1,902,407	1,902,407
1968	844,311	619,311	\$ 225,000	2,602,114	2,377,114
1969	844,246	600,049	244,197	2,855,441	2,611,244
1970	843,596	750,000	93,596	2,799,444	2,705,848
1971	972,177	800,954	171,223	2,743,446	2,572,223
1972	1,070,323	710,074	360,249	2,687,449	2,327,200
1973	1,370,510	750,000	620,510	2,635,759	2,015,249
TOTAL	6,919,284	5,204,509	1,714,775	27,625,237	25,910,462

CONSUMPTION VS SAFE YIELD
MAJOR SURFACE WATER SUPPLY SYSTEMS SERVING
BERGEN, ESSEX, HUDSON, PASSAIC AND UNION COUNTIES

Water Supply System	<u>CONSUMPTION - MGD (1)</u>												System Safe Yield for Controlling Drought in 1960's	Deficit (-) or Surplus (+) for 1973
	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973		
Wanaque-Ramapo (NJDWSC)	107	109	110	94	93	93	103	109	110	109	112	99	94	- 5
Pequannock (Newark Water Dept.)	54	54	54	42	33	54	59	61	66	65	61	71	50	-21
Rockaway (Jersey City Water Dept.)	56	55	57	55	56	53	59	58	75 ⁽²⁾	66	71	72	65	- 7
Hackensack (Hackensack Water Co.)	66	68	70	64	75	76	81	83	84	88	88	89	92	+ 3
Passaic-Little Falls (PVWSC)	39	40	40	41	43	45	47	46	54	52	49	52	75	+23
Imports from Raritan Basin (E-town WCo. to Newark)	0	0	1	11	19	13	12	10	9	10	8	12	0 ⁽³⁾	-12
Totals	322	326	331	296	300	321	349	357	389	380	381	395	376	-19

(1) Consumption in million gallons per day based on quarterly reports of monthly diversions filed by water purveyors in accordance with NJSA 58:1 - 16.

(2) Includes 13 MGD released to the Rockaway River for water pollution control.

(3) Imports from the Raritan Basin are a response to existing deficits in the Passaic and Hackensack Basins. The safe yield is zero with respect to the Passaic and Hackensack Basins.

PROJECTIONS FOR NORTHEAST NEW JERSEY*

Table A. Projected Population by Counties

COUNTIES	1970	1975	1980	1985	1990	1995	2000
Bergen	893,850	949,750	1,015,250	1,039,140	1,155,820	1,211,900	1,269,730
Essex	933,320	951,210	971,050	985,530	1,000,010	1,014,490	1,023,950
Hudson	609,055	614,290	616,100	613,400	620,700	622,950	625,200
Middlesex	585,730	631,760	677,750	730,160	732,570	835,530	888,500
Morris	385,145	417,130	449,110	491,750	534,400	577,470	620,540
Passaic	461,940	439,300	516,650	545,980	575,320	604,640	633,970
Somerset	199,030	215,120	231,220	252,130	273,040	293,630	314,320
Union	544,090	576,270	608,450	642,210	675,970	710,900	745,830
Hunterdon**	46,160	52,000	58,400	63,500	68,700	74,400	80,100
Mercer **	65,026	73,300	79,200	86,000	92,700	101,000	109,000
Monmouth **	23,200	25,500	27,800	30,100	32,500	35,000	33,000
TOTAL	4,753,106	4,995,630	5,251,000	5,534,900	5,811,730	6,081,850	6,352,200

Table B. Projected Per Capita Water Use in Gallons Per Day per Person

BY COUNTIES	1970	1975	1980	1985	1990	1995	2000
Bergen	116	127	140	153	168	184	197
Essex	160	181	202	223	246	276	303
Hudson	171	171	179	186	193	200	210
Middlesex	150	158	168	180	193	207	222
Morris	104	114	125	137	151	167	184
Passaic	180	187	189	193	198	203	209
Somerset	110	116	124	133	143	155	171
Union	141	152	167	138	209	231	252
Hunterdon **	103	116	132	151	172	195	200
Mercer **	106	119	132	146	160	175	190
Monmouth **	86	94	102	110	120	130	140
AVERAGE	143	153	165	176	192	208	224

Table C. Projected Potable Water Demand in Million Gallons per Day (MGD)

COUNTIES	1970	1975	1980	1985	1990	1995	2000
Bergen	104	120	142	167	194	223	250
Essex	149	172	195	219	246	277	312
Hudson	104	105	110	115	120	125	131
Middlesex	88	100	113	133	152	173	199
Morris	41	48	56	67	80	96	113
Passaic	83	92	97	105	113	123	134
Somerset	22	25	29	33	39	46	53
Union	77	87	102	121	141	164	188
Hunterdon**	5	6	7	9	11	14	16
Mercer **	7	8	10	12	15	17	20
Monmouth **	2	2	3	3	4	5	6
TOTAL	682	765	864	984	1115	1263	1422

* Population projections prepared by New Jersey Department of Labor and Industry.

Water projections prepared by New Jersey Department of Environmental Protection.

** Within Raritan Basin only.

