

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**BASIS AND BACKGROUND STATEMENT**

**PROPOSED AMENDMENTS TO N.J.A.C. 7:11-2.1 et seq. IN THE SCHEDULE OF  
RATES, CHARGES AND DEBT SERVICE ASSESSMENTS  
FOR THE SALE OF WATER FROM THE RARITAN BASIN SYSTEM**

**ADJUSTMENT OF GENERAL RATE SCHEDULE FOR  
OPERATIONS AND MAINTENANCE FOR  
SALES BASE AND OPERATING EXPENSES FOR FISCAL YEAR 2017**

**ADJUSTMENT OF DEBT SERVICE ASSESSMENT TO FOR  
DEBT SERVICE PAYMENTS DUE AND REQUIRED FOR FISCAL YEAR 2017**

**ADJUSTMENT OF GENERAL RATE SCHEDULE FOR  
CAPITAL FUND COMPONENT FOR FISCAL YEAR 2017**

**ADJUSTMENT OF SOURCE WATER PROTECTION FUND  
COMPONENT FOR FISCAL YEAR 2017.**

**Proposed Effective Date: July 1, 2016**

**Approved by the Board: 12/7/2015**

**NEW JERSEY WATER SUPPLY AUTHORITY  
PROPOSED RATE ADJUSTMENTS FOR FISCAL YEAR 2017  
RARITAN BASIN SYSTEM**

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## **PART I - EXPLANATION OF PROPOSED REVISED RATE STRUCTURE**

### **Overview of Rate Proposal for Fiscal Year 2017** **(July 1, 2016 - June 30, 2017)**

The New Jersey Water Supply Authority (Authority) is proposing to adjust its Schedule of Rates, Charges and Debt Service Assessments for the Sale of Water from the Raritan Basin System, to cover expenses for the Fiscal Year (FY) starting on July 1, 2016.

#### **Summary of Proposed Adjustments**

<b>Component</b>	<b>Current (FY2016) Rates Per MG 7/1/2015 - 6/30/2016</b>	<b>Proposed (FY2017) Rates Per MG 7/1/2016 - 6/30/2017</b>
Operations & Maintenance Assessment	\$171.00	\$171.00
NJEIFP Debt Service Assessment	\$25.00	\$25.00
Capital Fund Component	\$33.00	\$33.00
Source Water Protection Fund Component	\$24.00	\$24.00
Total Rate	\$253.00 /mg	\$253.00 /mg

The General Rate Schedule for Operations and Maintenance (O&M) was last adjusted effective July 1, 2015 to cover the operating expenses of the System for FY2016. The FY2016 O&M sales base was 182.339 million gallons per day (mgd). The Authority anticipates the FY2017 O&M sales base to remain the same at 182.339 mgd. The O&M Component is projected to remain the same for FY2017 at \$171.00 per million gallons.

With the allocation of appropriate Headquarters expenses and insurance costs to the Manasquan Reservoir Water Supply System, the projected operating costs for FY2017 require that an O&M Component of \$171.00 per million gallons be charged starting on July 1, 2016.

In recent fiscal years, the actual O&M Component adjustments have been minimized because of credits for receipts of unanticipated revenues from the sale of water in excess of contractual amounts, positive budget variances during the preceding fiscal years or from uses of other one-time sources of revenue. These credits continue to have the effect of obscuring the full O&M Component adjustment needed and as a result Raritan Basin System rates do not represent full cost pricing. The rate has been subsidized by an average of \$1.9 million in non-recurring (overdraft sales and depletion of reserves) revenue over the past five years. The amount available for the Rate Stabilization Fund was \$1,571,150 in FY2016 and will be \$2,124,150 in FY2017. This increase in revenue causes a \$9.98 per million gallon decrease in the O&M component of the rate even before expense increases are considered. Overdraft sales rose from \$1,157 in FY2016 to \$213,151 in 2017. The balance of the rate stabilization funds used in FY2017 is

derived from \$1.57 million in dredging bond debt service to be raised in FY2016 but not needed currently because the project is postponed another year. Without the use of any rate stabilization funds in FY2017, the required O&M Component of the rate would be \$181 per million gallons.

The Authority established the Source Water Protection Fund Component in FY2003 to protect the quality and quantity of waters in the Raritan Basin System. The Authority is proposing no increase in this component of the Rate of \$24.00 per million gallons in FY2017. The rate component supports debt service on acquired critical watershed parcels and matching dollars for watershed protection projects.

The Authority has submitted an application to the New Jersey Environmental Infrastructure Financing Program (NJEIFP) to finance the dredging of a 10.5 mile segment of the Delaware and Raritan Canal (D&R Canal) between Kingston at Lincoln Highway to Amwell Road in Franklin Township, Somerset County, New Jersey. The Authority proposes continuing the rate component of \$25.00 per million gallons to fund the debt service in FY2017, despite that the project is being postponed one additional year. This rate component is temporarily subsidizing the Operations and Maintenance component of the rate.

Finally, the Authority established a "Capital Fund Component" of the rate commencing July 1, 1994. This Component is used to fund the Authority's current Capital Improvement Program without incurring long-term debt. The Capital Fund Component was increased in FY2008 from \$21.00 to \$33.00 per million gallons, funded from the 1981 Bond Act debt service savings. The rate component was reduced to \$30.00 per million gallons in FY2012 to accommodate pressure on the O&M Component in order to keep the overall rate at \$231.00 per million gallons. The Authority increased this component of the rate from \$30.00 to \$33.00 per million gallons in FY2016 and proposes to keep it at the same rate of \$33.00 per million gallons in FY2017.

Table 1 on page 12 shows the maintenance of a stable rate for each rate component and reflects a total rate of \$253.00 per million gallons for FY2017.

The balance of this document contains a further discussion of the individual rate components, a Schedule of Events and Detailed Supporting Information for the proposed rate adjustments.

A pre-public hearing on the proposed rate adjustments is scheduled at 10:00 a.m. on Friday, January 8, 2016, at the Authority's Administration Building, 1851 Highway 31, Clinton, New Jersey.

A public hearing on the proposed rate adjustments is scheduled at 10:00 a.m. on Friday, February 5, 2016 at the Authority's Administration Building, 1851 Highway 31, Clinton, New Jersey.

The New Jersey Register Comment Period is scheduled to close on March 4, 2016 and the public hearing record on the proposed rate adjustments is scheduled to close on March 14, 2016.

Final action on the rate adjustment is scheduled for the Authority's June 6, 2016 meeting. The FY2017 rate will take effect on July 1, 2016.

### **Distribution of Headquarters General and Administrative Costs and Insurance Costs to all Operating Systems**

On July 1, 1990 the Authority placed the Manasquan Reservoir Water Supply System in operation to provide an untreated water supply for use throughout Monmouth County. In addition to this major System, the Authority also began operation of the Water Treatment Plant and Transmission System for the Monmouth County Improvement Authority (MCIA) on July 1, 1990. The Boroughs of Brielle, Spring Lake, Spring Lake Heights, Sea Girt and Wall Township entered into agreements with the MCIA for this treatment/transmission system, which treats and conveys their portion of the supply from the Manasquan Reservoir System. In December 2008, the five member communities created the Southeast Monmouth Municipal Utilities Authority and in September 2009 purchased the Water Treatment Plant from the MCIA and the Authority continues to operate the Water Treatment Plant. The Authority is operating, maintaining and managing three distinct Systems each with its own budget, cost accountability and revenue stream.

The Authority's Headquarters' staff located in Clinton provides general and administrative support services for all three Systems. These services include, but are not limited to, Financial Management, Payroll, Human Resources, Purchasing, Contract Administration, Risk Management and overall management. In order to equitably assess each of the three Systems, the Authority previously retained the services of an auditing firm to develop a methodology for the allocation of the Headquarters General and Administrative costs to all three operating Systems. After the close of each fiscal year, the Authority's auditors provide the Authority with their findings as to the adjustment, if any, to the allocation factors and the actual audited expenditures for the fiscal year.

The audit report for the immediately preceding fiscal year ending June 30 is available during November. Each September the Authority formulates the proposed budgets for the upcoming fiscal year starting on the following July 1. The adjusted allocation factors, if any and the audited expenditures for the previous fiscal year are used to establish a debit or credit for each of the three operating Systems. This debit or credit is applied to the budgets being prepared each September for the upcoming fiscal year starting on July 1.

An independent accounting firm performed the Authority's FY2015 audit. The audit included a review of the allocation factors as well as the actual audited expenditures. The appropriate adjustments have been made to the FY2017 budget based on the FY2015 audit. A copy of the Auditor's report on the allocation of the Headquarters General and Administrative costs is included in the Appendices to the rate proposal package for each System.

Insurance costs are also allocated to each System based upon the recommendations of the Authority's Risk Management Consultant. See the rate proposal package for more information on insurance charges.

### **Analysis of Significant Changes in Operations and Maintenance Expenses** **Raritan Basin System**

#### **Overview of Projected Operational Expenses**

The Authority's proposed FY2017 Raritan Basin System Total Budget requirement, which is net of the allocation of appropriate Headquarters General and Administrative expenses to the Manasquan Water Supply System, and includes capital equipment and contribution to reserves is \$13,616,024. This is \$587,124 more than the FY2016 budget of \$13,028,900. The Capital Equipment budget of \$182,900 is \$116,000 less than the FY2016 budget of \$298,900. The proposed contributions to the Reserve for Formal Dam Inspections (\$10,000), Capital Equipment Reserve (\$150,000) and the Pumping Reserve (\$150,000) remain at FY2016 levels. There are no contributions scheduled for the Depreciation Reserve and the Self-Insurance Reserve in FY2017. These Reserves last received a \$100,000 and \$150,000 contribution in FY2011 respectively but are sufficiently funded at the present time. There are no proposed contributions to the Operations and Maintenance Reserve, Major Rehabilitation Reserve or the Pension Reserve. The reserve for capital equipment purchases established in FY2015 requires an additional year of funding with a simultaneous direct expenditure for capital equipment because six years of stable rates from FY2009 through FY2013 caused deferral of equipment purchases which are no longer prudent. It is still the Authority's intention to fund the reserve at an annual level of \$150,000 to eliminate rate fluctuations associated with the annual change in level of capital equipment purchases once the reserve is adequately funded. In FY2017 for the first time, the Authority is funding a reserve for other post-employment benefits (accumulated sick leave payout for retirees) of \$181,000. This is in lieu of creating a liability on the Authority's balance sheet. This represents the maximum statutory benefit for all employees eligible to retire as of June 30, 2015. All of these modifications result in a total FY2017 budget requirement of \$13,616,024 which is an increase of 4.51 percent relative to FY2016. (Page 15)

Fifteen of the thirty-one FY2017 direct operating expense accounts are projected to increase, but only five accounts by \$5,000 or more relative to FY2016. Ten of the operating expense accounts are projected to decrease relative to FY2016. The most significant projected increases in the budget occur in service and maintenance contracts, and special and professional services. In Salary and Fringe, regular salary is increasing by \$187,950; pension expense is increasing by \$28,500. Retiree health benefits are increasing by \$237,200 and assume 7 additional retirees between FY2016 and FY2017. Salaries and benefits constitute approximately 75 percent of the FY2017 operating budget, and are increasing approximately 5.2 percent relative to FY2016.

## Salaries and Benefits

Authority employees are operating currently without a contract. The previous contract expired June 30, 2015. The FY2017 budget assumes a 1.75% cost of living adjustment payable July 1, 2016. The International Federation of Professional and Technical Engineers (IFPTE), AFL-CIO, represents the Authority's Maintenance, Craft and Security Units and the Communications Workers of America (CWA) represents the Authority's Administrative and Clerical, Primary Level and Higher Level Supervisors Units.

Due to a law change requiring certain managers to be unionized, two managers from the Raritan system and one from the Manasquan system joined the International Brotherhood of Electrical Workers (IBEW) as of March 21, 2015.

The Authority did not include any cost of living adjustments in the FY2017 budget for management. The Authority is budgeting 54 percent of the Salary budget for fringe benefits in FY2017, exclusive of retiree medical.

The initial estimate from the State of New Jersey for pension expense payable on April 1, 2016 is not yet available. The Authority has built in 20 percent per year growth in that expense item over actual FY2015. Although increases have stabilized in the last three years, there is still a level of uncertainty in this expense item because the pension system remains significantly underfunded.

## Overtime Salaries and Wages

The Authority's overtime expenses are projected to decrease nominally by \$600 from \$190,600 to \$190,000 in FY2017. Overtime expenses are incurred within Security and O&M Facilities and Canal Operations principally (those areas operating within a crew or shift structure).

## Retiree Health Benefits

Employees who retired with a minimum of 25 years of service prior to July 1, 1997 are entitled to paid health benefits. For those who retire after July 1, 1997, co-pay is required. The Authority is increasing the retiree health benefits expense item in FY2017 by \$237,200. The Authority is budgeting seven additional retirees in FY2017 and one of those individuals will actually retire in the current fiscal year. The Authority's estimate is based on CY2016 health benefit rates increased by 20 percent for CY2017 and blended to derive a FY2017 rate. The budget contains sufficient funds for 57 retired employees.

## Other Expense

Electrical Service - The Authority's Hamden Pumping Station is utilized to pump water to the Round Valley Reservoir. The proposed budget includes a slight increase in electricity costs for the normal operation of the pumping station from \$90,000 to \$92,000 in FY2017. The Authority entered into a three-year contract for power effective June 21, 2010. The State extended the



contract with the vendor two and a half more years to December 31, 2015. The Authority has agreed to participate in a re-procured, three-year State contract effective January 1, 2016 and is expecting only slight rate reductions. The State of New Jersey prefers budget certainty and opts for longer term contracts over lower rates. The pumps are in a scheduled rehabilitation cycle and will be exercised as rehabilitated pumps are put back on line (current expectation for the first two pumps is Spring 2016). Pumping is funded from the Pumping Reserve (\$150,000 annual deposit).

### Special and Professional Services

The Authority is proposing to increase this line item from \$477,600 in FY2016 to \$498,140 in FY2017 representing a realignment of United States Geological Survey gaging station costs. In other areas, pricing is stable. The line item also includes payments to the Governor's Authorities Unit, costs charged to the Authority by the Attorney General's Office for legal services provided, and the cost of the Authority's independent auditor.

### Heating Fuel and Vehicular Fuel

The cost of heating fuel is expected to increase from \$106,400 to \$107,100 and vehicular fuel is projected to increase by \$1,200 from \$157,800 in FY2016 to \$159,000 in FY2017. The prices of fuel in FY2017 are budgeted at \$2.45 per gallon for unleaded and \$2.65 per gallon for diesel.

### **Insurance Program**

The Authority is recommending a decrease in insurance expense for FY2017 reflecting general market conditions based on the advice of the Authority's insurance broker and consultant. The Authority will pursue a formal re-marketing in January 2016, effective for the March 1<sup>st</sup> renewal period. The Authority has included a \$7,800 decrease in the insurance line item for FY2017 which is a .6 percent decrease over budgeted FY2016.

Allocation of the Primary, Umbrella and Public Officials Liability insurance costs between the three Systems is based upon proportionate water sales. The Automobile Liability cost is allocated based upon the assignment of vehicular equipment to each System. The cost of the Business Property coverage is allocated on the basis of insured values for each System and the Workers Compensation premiums are allocated on the basis of salaries for each System.

### **Interest Income**

The projected interest earnings for FY2017 are \$35,400 based upon current rates of .25 percent for Short-term investments and 1.30 percent on the Authority's long-term investments. This represents no change relative to FY2016. (Schedule 7, page 25) At the urging of the contractual water customers, the Authority executed sweep contracts for its non-interest bearing accounts. After analysis, the Authority reversed the contracts because of increased costs

assessed against the accounts. Due to the naturally low balances in these accounts and the large number of transactions, the transaction costs outstripped the sweep interest earnings. Most of the Authority's short and long-term investments are either direct Treasury note investments or pegged to the Treasury bill.

### **Reserve Contributions**

During FY2017 the Authority will make no contribution to the Depreciation Reserve. The Depreciation Reserve is fully funded in FY2017 (Page 15).

The Authority will contribute \$150,000 to the pumping reserve, and will do so every year, as this will be the primary funding mechanism for pump exercises and reservoir refilling requirements. The Self Insurance Reserve fund will receive no funding in FY2017. The Authority will continue funding for the Reserve for Formal Dam Inspections at \$10,000 in order to avoid future swings in the professional services accounts for expenses associated with this three-year cycle. The Authority will contribute \$150,000 to the Capital Equipment Reserve, and will do so every year, as this will be the primary funding mechanism for capital equipment purchases. When the reserve reaches the appropriate level, while equipment purchases will continue to be identified in the Basis and Background Document and approved by the Board, the direct line item will be removed from the rate and replaced by the annual appropriation. In FY2017 for the first time, the Authority is funding a reserve for other post-employment benefits (accumulated sick leave payout for retirees) of \$181,000. This is in lieu of creating a liability on the Authority's balance sheet. This represents the maximum statutory benefit for all employees eligible to retire as of June 30, 2015.

### **Debt Service Assessments**

#### **New Jersey Environmental Infrastructure Financing Program Debt Service Assessment – D&R Canal Dredging**

The Authority has submitted an application to the New Jersey Environmental Infrastructure Financing Program (NJEIFP) to finance the dredging of 300,000 cubic yards from a 10.5 mile segment of the Delaware and Raritan Canal (D&R Canal) between Kingston at Lincoln Highway to Amwell Road in Franklin Township, Somerset County, New Jersey. This project is expected to cost approximately \$35,000,000 and last in duration up to three years. Funding through the NJEIFP would allow a portion of the loan to be at zero interest and a portion of the loan to be at market rate with the blended rate at favorable terms. The expected closing on the bonds will be May of 2017 with the first debt service payment in August 2017. The Authority proposes to continue the rate component of \$25.00 per million gallons in FY2017 to assure that sufficient funds are available to make debt service payments as they come due in August 2016 and every six months thereafter.

The project was originally scheduled to close in May of 2014 but was deferred three years. The sum of approximately \$1.5 million that will be collected during FY2016 will be

deposited into the Rate Stabilization Fund to offset the rate requirement in FY2017.

**Capital Fund Component For  
Current Financing of Capital Improvement Program**

During the period from 1982-1993 the Authority had invested \$62,000,000 in the Capital Improvement Program for the Raritan Basin System. Much of this effort was the direct result of inadequate investments in the facilities during the years preceding the creation of the Authority. These Capital Improvement Programs were financed through the issuance of two long-term debt obligations, the 1981 Water Supply Bond Funds and 1988 Water System Revenue Bonds.

In 1995, the Authority began preparing a rolling five-year Capital Improvement Program, which required the investment of approximately \$1,500,000 per year. Current estimates place the annual necessary investment between \$2,500,000 and \$5,500,000. In evaluating options for financing this program (and subsequent five year CIP's) the Authority looked at (1) the continuation of the practice of incurring long-term debt through the issuance of Revenue Bonds and (2) the possibility of current financing through the assessment of annual charges as part of our rate structures. The Authority concluded at the time that financing of such a small annual Capital Improvement Program based upon the issuance of long-term debt was fiscally imprudent. The Authority reevaluates this financing methodology on an annual basis.

The Authority's financial plan was predicated upon the establishment of a Capital Fund Component of \$10 per mg starting on July 1, 1994 with subsequent increases in this component of the total rate structure to \$15 per mg effective July 1, 1995 and to \$20 per mg effective July 1, 1996 and to \$25 per mg effective on July 1, 1998. Since then, the annual rate component has fluctuated between \$20 and \$35.

This level of current financing for reinvestments in plant and equipment somewhat exceeds the booked depreciation of the plant and equipment for the Raritan Basin System facilities (without the depreciation of the dams), which amounts to about \$1,900,000 per year. Any future unplanned or unanticipated major capital investment may, however, require the issuance of long-term debt. Any future planned activity that increases the System capacity will be financed using long-term debt.

For FY2017, the Authority continues to believe the use of internally generated funds for such capital improvements is the least cost method of financing.

The Authority has determined that a Capital Fund Component of \$33.00 per million gallons, level funding over FY2016, should be assessed for FY2017 to generate approximately \$2,196,273. The Authority deems these revenues sufficient to meet its capital needs for FY2017 in light of existing capital reserves and excellent contract pricing, and to ensure that sufficient funds are committed to the continuing rehabilitation of Authority assets. The Authority is expecting to raise the Capital Fund Component of the Rate to \$38.00 per million gallons in FY2018 to assure that the projected capital needs, especially for repairs to the D&R Canal, are met within the five year program.

### **Source Water Protection Fund Component for the Protection of Water Quality**

The Authority established its Watershed Protection Unit in 1999 to implement a watershed management program for the Raritan River Basin pursuant to a Memorandum of Agreement with the New Jersey Department of Environmental Protection. Primary functions of the Unit are planning for watershed protection, development and implementation of projects that improve protection of water supply.

As a component of the Authority's watershed protection initiative, the Authority established the Source Water Protection Fund in August of 2001 for the purpose of protecting the quality and quantity of waters in the Raritan Basin System. The first \$5.00 per million gallons of the component is used for three purposes in cooperation with federal, State, local and nonprofit partners: (1) administrative actions associated with the acquisition of critical watershed parcels in the Raritan Highlands; (2) planning assistance to improve management of land development by municipal, county and State government to protect both water quality and flows to and within Authority facilities; and (3) water quality characterization and associated remedial projects to preserve and enhance water quality.

In light of the rapid decline in available watershed parcels, and the critical value of these parcels to the sustained supply of water in the Raritan Basin System, the Authority increased the Source Water Protection Fund by \$5.00 per million gallons in FY2004 and again by \$3.00 per million gallons in FY2006, to acquire fee and other interests in critical watershed parcels in the System and rehabilitate properties to maximize benefit to water quality and quantity. To date, more than 3,954 acres of property have been preserved by the Authority and its partners. Some of the watershed and water quality projects include a tributary and storm water assessment of the D&R Canal to determine sediment loading, followed by an implementation project, the development of storm water management plans for a variety of tributaries in the Basin, a stream restoration project of a reach of the Mulhockaway which feeds into Spruce Run. The Authority increased the Source Water Protection Rate from \$13.00 per million gallons to \$15.00 per million gallons in FY2008 to further support direct watershed protection and restoration projects. The Authority increased the Source Water Protection Rate from \$15.00 per million gallons to \$24.00 per million gallons in FY2014 to support debt service on previously acquired critical watershed parcels. The Authority is proposing no change to this component of the Rate in FY2017.

### **Other Rule Amendments**

There are no other rule amendments. The language supporting the overall proposal is contained beginning on page 55 of this document.

**PART II – DETAILED SUPPORTING INFORMATION**

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Table 1 - Summary Of Proposed Fiscal Year 2017 Adjustments  
Based On Present Usage**

The rates, charges and debt service assessments listed below shall be paid for raw water diverted, withdrawn or allocated from the Raritan Basin System:

RATE COMPONENT	CURRENT	ORIGINAL PROPOSAL 12/07/15	DIFFERENCE	PERCENTAGE INCREASE (DECREASE)
O & M Assessment	\$171.00	\$171.00	→ 0.00	0.00%
NJEIFP Debt Service Assessment	25.00	25.00	→ 0.00	0.00%
Capital Fund Component	33.00	33.00	→ 0.00	0.00%
Source Water Protection Component	24.00	24.00	→ 0.00	0.00%
Total Rate	\$253.00/mg	\$253.00/mg	→ 0.00	0.00%

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Table 2 - Rate History of Water Charges per Million Gallons of Raw Water Daily**  
Fiscal Year 2003 – Fiscal Year 2017

Effective Date	O&M Charge	1981 Bond Charge 7/1/86-10/30/06	1998 Bond Charge 8/1/98-11/1/13	NJEIFP Component 8/1/13-8/1/23	Capital Fund Component	Source Water Protection Component	Total Charge per MG	Percent Increase -Decrease
July 1, 2002	105.46	31.73	49.28		13.53	5.00	\$205.00	0.00%
July 1, 2003	111.68	31.62	49.15		7.55	10.00	\$210.00	2.44%
July 1, 2004	122.75	28.31	41.71		12.23	10.00	\$215.00	2.38%
July 1, 2005	111.80	28.24	41.51		20.45	13.00	\$215.00	0.00%
July 1, 2006	133.13	19.55	41.32		21.00	13.00	\$228.00	6.05%
July 1, 2007	138.71		41.29		33.00	15.00	\$228.00	0.00%
July 1, 2008	142.34		40.66		33.00	15.00	\$231.00	1.32%
July 1, 2009	142.39		40.61		33.00	15.00	\$231.00	0.00%
July 1, 2010	142.55		40.45		33.00	15.00	\$231.00	0.00%
July 1, 2011	145.66		40.34		30.00	15.00	\$231.00	0.00%
July 1, 2012	145.84		40.16		30.00	15.00	\$231.00	0.00%
July 1, 2013	152.00			25.00	30.00	24.00	\$231.00	0.00%
July 1, 2014	167.00			25.00	30.00	24.00	\$246.00	6.49%
July 1, 2015	171.00			25.00	33.00	24.00	\$253.00	2.85%
<b>July 1, 2016</b>	<b>171.00</b>			<b>25.00</b>	<b>33.00</b>	<b>24.00</b>	<b>\$253.00</b>	<b>0.00%</b>

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYTEM

**Schedule Of Events**

(NJAC 7:11-2.1 et. seq.)

To become effective July 1, 2016

**2015**

- SEPTEMBER 18 Advise Water Users of informal meeting.
- NOVEMBER 6 Informal meeting with Water Users – 10:00 AM.
- DECEMBER 7 Board reviews and approves proposed Rates.
- 17 Mail Official Notice to water customers, Rate Payer Advocate, interested parties and advertise in newspapers.

**2016**

- JANUARY 4 Publication in the New Jersey Register.
- 8 Pre-Pubic Hearing – 10:00 AM (within 45 days of Official Notice). Deadline for responses to inquires received prior to pre-public hearing.
- 25 Deadline for receipt of comments to be addressed at Public Hearing (15 days after pre-public hearing).
- FEBRUARY 5 Public Hearing Meeting. (SR Administration Building) – 10:00 AM Deadline for responses to inquires received between pre-public and public hearing.
- 22 Written responses to questions raised at Hearing (within 10 business days of the public hearing).
- MARCH 4 NJ Register Comment Period Ends.
- 14 Public Hearing record closes (25 business days after Public Hearing).
- JUNE 6 Board approval of FY 2017 Rates and Budgets.
- JULY 1 Effective date.

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Proposed**

**Fiscal Year 2017 Budget Summary**

(7/1/16 - 6/30/17)

	<u>ADOPTED</u> F/Y16	<u>PROPOSED</u> F/Y17
Proposed Operating Expense Budget (Schedule 1)	\$ 13,157,000	\$ 13,686,124
Net Allocation of Headquarters General and Administrative Expenses to the Manasquan Water Supply System - (Schedule 5)	<u>\$ (737,000)</u>	<u>\$ (744,000)</u>
Proposed Total Expense Budget	\$ 12,420,000	\$ 12,942,124
Proposed Capital Equipment Budget (Schedule 6)	<u>\$ 298,900</u>	<u>\$ 182,900</u>
Total Operating Expense & Capital Equipment Budgets	\$ 12,718,900	\$ 13,125,024
Contribution to Reserve Funds		
- Other Post Employment Benefits Reserve	\$ -	\$ 181,000
- Reserve for Formal Dam Inspection	\$ 10,000	\$ 10,000
- Pumping Reserve	\$ 150,000	\$ 150,000
- Capital Equipment Reserve	<u>\$ 150,000</u>	<u>\$ 150,000</u>
Total Budget Requirements	<u>\$ 13,028,900</u>	<u>\$ 13,616,024</u>
 <u>MISCELLANEOUS REVENUES:</u>		
Employee Housing/Land Rental	\$ (56,000)	\$ (47,200)
Receivable from the State of NJ and Other Reservoir Sites	\$ (5,000)	\$ (5,000)
Interest Earnings on Funds (Except Major Rehabilitation and Depreciation Reserve Fund) (Schedule 7)	<u>\$ (35,300)</u>	<u>\$ (35,400)</u>
	<u>\$ (96,300)</u>	<u>\$ (87,600)</u>
 <u>OTHER AVAILABLE FUNDS:</u>		
Funds Appropriated to Rate Stabilization Fund for use in F/Y2016 (Resolution #2194, dated 06/01/15)	\$ (1,571,150)	\$ -
Unanticipated Revenue (Schedule 8)	<u>\$ -</u>	<u>\$ (2,124,150)</u>
Total Other Available Funds	<u>\$ (1,571,150)</u>	<u>\$ (2,124,150)</u>
Net Amount to be paid for O & M Component	<u><u>\$ 11,361,450</u></u>	<u><u>\$ 11,404,274</u></u>

Note 1. This amount is net of withdrawal from Depreciation Reserve.



NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 1 - Proposed Operating Expenses Budget – Fiscal Year 2017 Distributed by Cost Center**  
Fiscal Year 2017

CODE	ACCOUNT	OFFICE EXECUTIVE DIRECTOR	FINANCIAL MANAGEMENT & ACCOUNTING	WATERSHED PROTECTION PROGRAMS	OPERATIONS MAINTENANCE & ENGINEERING	PROPOSED BUDGET FOR FY17
5110	Regular Salaries & Wages	\$121,900	\$1,781,050	\$572,900	\$3,410,800	\$5,886,650
5120	Overtime-Salaries & Wages	0	104,600	300	85,100	190,000
5130	New Positions-Salaries & Wages	0	0	0	0	
5140	Seasonal Help-Salaries & Wages	0	0	0	0	
5150	Fringe Benefits	35,800	834,300	234,600	2,066,800	3,171,500
5167	Retiree Health Benefits	51,900	268,200	36,700	688,700	1,045,500
5168	Workers Compensation (Self-Insured)	0	10,000	0	0	10,000
	Total Salary & Fringe Benefits	\$209,600	\$2,998,150	\$844,500	\$6,251,400	\$10,303,650
5200	On-Site Residences	0	\$0	0	\$35,600	\$35,600
5211	Heating Fuel	0	\$0	0	\$107,100	107,100
5220	Utilities -Electrical Service	0	\$0	0	\$112,500	112,500
5230	" -Gas Service & Water	0	\$0	0	\$5,000	5,000
5240	" -Propane	0	\$0	0	\$200	200
5250	Electricity for Pumping	0	\$0	0	\$92,000	92,000
5260	Vehicular Fuel	0	\$159,000	0	\$0	159,000
5270	Oil & Grease	0	\$0	0	\$8,700	8,700
5280	Tires	0	\$0	0	\$29,000	29,000
5290	Maintenance Supplies	0	\$8,100	0	\$186,200	194,300
5300	Maint. Supplies - Vehicular Equipment	0	\$0	0	\$48,000	48,000
5310	Major Special Vehicle Service & Repair	0	\$0	0	\$80,000	80,000
5320	Agricultural Supplies	0	\$1,000	0	\$4,000	5,000
5330	Maintenance of Equipment	0	\$22,200	3500	\$18,500	44,200
5340	Service & Maintenance Contracts	0	\$60,300	100	\$137,200	197,600
5350	Equipment Rental	0	\$24,850	0	\$13,200	38,050
5360	Household-Safety & Protective Supplies	100	\$27,400	0	\$4,100	31,600
5370	Uniforms	0	\$4,500	0	\$2,300	6,800
5380	Special & Professional Services	25,000	\$215,640	124600	\$132,900	498,140
5390	Protective Services	0	\$1,300,000	0	\$0	1,300,000
5400	Telephone	0	\$75,000	0	\$0	75,000
5410	Postage & Freight	0	\$7,500	0	\$100	7,600
5420	Data Processing	0	\$42,284	0	\$0	42,284
5430	Printing & Office Supplies	500	\$35,350	9000	\$7,300	52,150
5440	Scientific & Photographic	0	\$0	0	\$500	500
5450	Dues & Subscriptions	14,400	\$12,200	1000	\$13,000	40,600
5460	Advertising	0	\$3,500	0	\$0	3,500
5470	Travel & Subsistence	1,500	\$1,900	1500	\$1,600	6,500
5480	Staff Training & Tuition Aid	500	\$8,750	3500	\$6,300	19,050
5490	Fees & Permits	0	\$113,100	0	\$10,700	123,800
5500	In-Lieu Taxes	0	\$18,700	0	\$0	18,700
	Total Operating Expenses	\$42,000	\$2,141,274	\$143,200	\$1,056,000	\$3,382,474
	<b>GRAND TOTAL</b>	<b>\$251,600</b>	<b>\$5,139,424</b>	<b>\$987,700</b>	<b>\$7,307,400</b>	<b>\$13,686,124</b>

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 1A - Comparative Statement**  
Fiscal Year 2017

CODE	ACCOUNT		FY'13 ACTUAL	FY'14 ACTUAL	FY'15 ACTUAL	FY'16 ADOPTED	FY'17 PROPOSED
5110	Regular Salaries & Wages		\$5,214,020	\$5,227,901	\$5,232,036	\$5,698,700	\$5,886,650
5120	Overtime-Salaries & Wages		211,797	186,907	176,438	190,600	190,000
5130	New positions-Salaries & Wages		0	0	0	0	0
5162	Retiree Unused Sick & Vacation		0	41,044	38,788	0	0
5150	Fringe Benefits		2,634,592	2,549,057	2,478,311	3,083,700	3,171,500
5167	Retiree Health Benefits		619,662	711,226	769,820	808,300	1,045,500
5168	Workers Comp. (Self Insured)		3,679	4,384	5,707	10,000	10,000
	Total Salary & Fringe		8,683,750	8,720,519	8,701,100	9,791,300	10,303,650
	Budget Salary & Fringe		\$8,982,500	\$9,700,250			
5200	Residences		\$80,172	\$85,031	\$77,320	\$41,600	\$35,600
5211	Heating Fuel		112,576	99,709	71,915	106,400	107,100
5220	Utilities -Electrical Service		104,123	106,609	105,818	112,500	112,500
5230	-Gas Service		4,258	4,980	4,234	4,700	5,000
5240	-Propane		102	520	271	200	200
5250	Electricity for Pumping Station		75,400	77,401	79,790	90,000	92,000
5260	Fuel - Vehicular		153,547	144,641	143,557	157,800	159,000
5270	Oil & Grease		2,829	5,222	6,041	6,600	8,700
5280	Tires		14,855	31,557	23,157	26,000	29,000
5290	Maintenance Supplies		165,264	161,555	147,168	213,300	194,300
5300	Maint. Supplies - Vehicular		38,258	51,614	47,617	39,000	48,000
5310	Major Vehicle Service & Repair		100,424	102,034	72,802	85,000	80,000
5320	Agricultural Supplies		1,328	653	3,008	5,000	5,000
5330	Maintenance Equipment		14,574	35,808	26,502	37,800	44,200
5340	Serv. & Maintenance Contracts		179,019	167,202	184,660	181,200	197,600
5350	Equipment Rental		139,944	60,514	42,988	39,900	38,050
5360	Household - Safety Supplies		24,137	26,771	26,899	33,200	31,600
5370	Uniforms		5,706	3,266	4,828	6,300	6,800
5380	Special & Professional Services		467,728	411,176	436,850	477,600	498,140
5390	Protective Services		1,047,791	1,133,656	1,188,766	1,307,800	1,300,000
5400	Telephone		70,944	73,113	83,797	72,400	75,000
5410	Postage & Freight Out		9,808	3,464	6,157	11,100	7,600
5420	Data Processing		42,660	36,203	40,023	44,500	42,284
5430	Printing & Office Supplies		78,749	56,904	46,225	57,700	52,150
5440	Scientific & Photographic		43	0	995	500	500
5450	Dues & Subscriptions		34,603	33,520	34,206	39,100	40,600
5460	Advertising & Promotional		3,269	5,925	3,898	11,000	3,500
5470	Travel & Subsistence		2,035	2,939	2,274	6,500	6,500
5480	Staff Training & Tuition Aid		13,561	11,220	8,352	18,800	19,050
5490	Fees & Permits		113,468	114,616	113,970	113,500	123,800
5500	In - Lieu Taxes		18,689	18,689	18,689	18,700	18,700
	Total Other Expenses		\$3,119,864	\$3,066,512	\$3,052,777	\$3,365,700	\$3,382,474
	Total Operating Expenses		\$11,803,614	\$11,787,031	\$11,753,877	\$13,157,000	\$13,686,124
	Annual Increase (Decrease)		1.23%	-0.14%	-0.28%	11.94%	4.02%
	Budget -other expenses		3,090,900	3,077,600	3,290,600	3,365,700	
	ANNUAL BUDGET		\$12,073,400	\$12,777,850	\$12,823,900	\$13,157,000	

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 2 - List of Category 5340 Items Recommended Service & Maintenance Contracts**  
Fiscal Year 2017

	ADOPTED F/Y16	PROPOSED F/Y17
1. Postage/Fax/ Misc. Machines (Dept. 16)	\$1,000	\$1,500
2. HIS-Safety Software (Dept. 17)	\$1,700	\$1,700
3. GO DADDY.COM - Remote Access Certificates (Dept. 17)	\$300	\$300
4. WMWARE (Dept. 17)	\$500	\$500
5. Sage MAS 200 (Dept. 17)	\$1,600	\$4,500
6. Western Technologies NJ Parcel Maps (Dept. 17)	\$1,300	\$1,300
7. Sage Fixed Asset (Dept. 17)	\$2,500	\$2,500
8. PV & Associates-Winslamm (Dept. 17)	\$500	\$500
9. People Trak Support Technical Difference (Dept. 17)	\$800	\$1,000
10. COMCAST - Cable Internet (Dept. 17)	\$4,200	\$4,280
11. Essention - Conservation Trak	\$0	\$2,500
12. OSHA Software (GAO) (Dept. 17)	\$100	\$0
13. Pure Host Web Hosting Administration (Dept. 17)	\$200	\$200
14. Pure Host Web Hosting Watershed (Dept. 17)	\$250	\$250
15. Symantec Anti-Virus Maintenance-Clinton (Dept. 17)	\$2,400	\$2,200
16. Sonic Wall Software (Dept. 17)	\$1,500	\$1,200
17. ESRI ArcView Maintenance-Watershed (Dept. 17)	\$5,400	\$5,400
18. CU Riverware Maintenance Agreement (Dept. 17)	\$3,400	\$3,400
19. McAfee Antispam (Dept. 17)	\$1,500	\$1,500
20. River Morph (Dept. 17)	\$800	\$500
21. DLT Solutions Autocad (Dept. 17)	\$1,000	\$1,500
22. Fastrax SBPS Monitoring Software (Dept. 17)	\$900	\$900
23. ESRI ArcView Maintenance-Clinton (Dept. 17)	\$500	\$800
24. Keystone Precision-GPS Software Maint. (Dept. 17)	\$800	\$800
25. HAAS Systems-Security Alarm Software Maint. (Dept. 17)	\$400	\$400
26. Clients First-Vipre Antivirus/Antispam (Dept. 17)	\$250	\$250
27. EZ Watch Security Video (Dept. 17)	\$0	\$900
28. Clients First - Server Software (Dept. 17)	\$0	\$1,000
29. Delmar Enterprises - Key Systems (Dept. 17)	\$0	\$520
30. Cleaning Services (Dept. 20)	\$1,800	\$0
31. Echowood Carpet Cleaning (Dept. 20)	\$1,500	\$0
32. Yahoo for River Friendly (Dept. 20)	\$100	\$100

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NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 2 (Cont.) - List of Category 5340 Items Recommended Service & Maintenance Contracts**

Fiscal Year 2017

	ADOPTED F/Y16	PROPOSED F/Y17
33. Refuse Collection (Dept. 31)	\$11,900	\$11,900
34. Janitorial Service (Dept. 31)	\$15,500	\$15,500
35. HVAC Service (Dept. 31)	\$5,500	\$5,500
36. Electrician & Plumber Services (Dept. 31)	\$5,000	\$5,000
37. Instrumentation Services (Dept. 31)	\$4,500	\$4,500
38. Entry Rugs (Dept. 31)	\$2,700	\$2,700
39. Carpet Cleaning (Dept. 31)	\$2,300	\$2,300
40. Generator Service-Administration Building (Dept. 31)	\$1,200	\$1,200
41. Underground Plant Location Service Notifications (Dept. 31)	\$1,000	\$1,000
42. Crane Service and Inspection (Dept. 31)	\$1,200	\$1,200
43. Elevator Service-SBPS (Dept. 31)	\$2,800	\$2,800
44. Electrical Service-SBPS (Dept. 31)	\$6,400	\$6,400
45. Floor Cleaning Maintenance-Office (Dept. 32)	\$2,400	\$2,400
46. Janitorial Service (Dept. 32)	\$7,300	\$7,300
47. Dumpster Service Canal Office (Dept. 32)	\$3,000	\$3,000
48. Dumpster Service Route 1 (Dept. 32)	\$28,000	\$31,000
49. Dumpster Service-Extra (Dept. 32)	\$2,000	\$2,000
50. Instrumentation Testing (Dept. 32)	\$1,000	\$1,000
51. Floor Mats (Dept. 32)	\$1,000	\$1,000
52. Grass Mowing Service (Dept. 32)	\$5,000	\$5,800
53. Boiler Service (Dept. 32)	\$300	\$300
54. Wood Disposal Fees (Dept. 32)	\$3,100	\$3,100
55. Generator Service-Scudders & Perdicaris (Dept. 32)	\$3,000	\$3,000
56. Vac Truck Service-IFW, 10 Mile PS (Dept. 32)	\$3,900	\$3,900
57. Tire Recycling (Dept. 32)	\$0	\$1,000
58. Floor Mats (Dept. 33)	\$2,300	\$2,800
59. Carpet Cleaning (Dept. 33)	\$3,100	\$8,000
60. Welco Gas (Dept. 33)	\$600	\$600
61. Parts Washer & Hazardous Removal (Dept. 34)	\$1,000	\$1,000
62. Fire Extinguisher Maintenance (Dept. 36)	\$6,000	\$7,000
63. Hazardous Waste Control (Dept. 36)	\$1,500	\$1,500
64. Fire Alarm Testing (Dept. 36)	\$8,000	\$8,000
65. Vehicle Lifts Annual Testing (Dept. 36)	\$1,500	\$1,500
TOTAL	<u>\$181,200</u>	<u>\$197,600</u>

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 3 - List of Category 5380 Items Recommended Professional Services**

Fiscal Year 2017

	<u>ADOPTED</u> F/Y16	<u>PROPOSED</u> F/Y17
1. Services-Governor's Authorities Unit (Dept. 10)	\$25,000	\$25,000
2. Consultant-C.P.A. to Conduct Annual Audit (Dept. 13)	\$60,000	\$60,610
3. Services-GFOA Certificate Fee (Dept. 13)	\$500	\$500
4. 125 Plan-Family security Insurance Agency (Dept. 13)	\$2,500	\$2,730
5. Archiving (Dept. 13)	\$0	\$5,000
6. Services-Pre-Employment Exams & Tests (Dept. 14)	\$3,100	\$2,400
7. Fidelifax-Background Checks (Dept. 14)	\$2,100	\$1,600
8. Medical CDL Drug Testing (Dept. 14)	\$1,600	\$1,600
9. Employee Advisory Service (Dept. 14)	\$2,800	\$2,500
10. Consultant-Risk Management - to provide assistance to the Authority in the review of insurance coverage and continuation of a Comprehensive Coordinated Risk Management Program (Dept. 15)	\$33,500	\$29,000
11. Insurance Broker-HRH (Dept. 15)	\$42,000	\$42,000
12. GL Administrator (ESIS) (Dept. 15)	\$2,100	\$800
13. Services-Attorney General's Office - Assistance of Deputy Attorney General concerning a wide range of legal matters (Dept. 15)	\$50,000	\$40,000
14. Miscellaneous (Dept. 15)	\$0	\$10,000
15. Water Monitoring Costs - USGS SR @ Glen Gardner (Dept. 20)	\$6,900	\$15,100
16. Water Monitoring Costs - USGS Mulhockaway @ Van Syckel (Dept. 20)	\$0	\$5,400
17. Water Monitoring Costs - USGS Lockatong Creek @ Raven Rock (Dept. 20)	\$0	\$11,900
18. Water Monitoring Costs - USGS Raritan River @ Manville (Dept. 20)	\$41,700	\$44,300
19. USGS Continuous Water Quality for D&R Canal, Landing Lane (Dept. 20)	\$31,000	\$33,600
20. Water Monitoring USGS Lock/Wick (Dept. 20)	\$11,500	\$0
21. Water Monitoring USGS @ Stanton Station (Dept. 20)	\$6,900	\$0
22. Water Monitoring-SBWA/URWA now RHA (Dept. 20)	\$2,000	\$2,000
23. Water Monitoring-SBMWA (Dept. 20)	\$1,500	\$1,500

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NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 3 (Cont.) - List of Category 5380 Items Recommended Professional Services**

Fiscal Year 2017

	<u>ADOPTED</u> F/Y16	<u>PROPOSED</u> F/Y17
24. Dash for the Trash (Dept. 20)	\$1,000	\$1,000
25. Lab Certification WPU/Water Sample Analysis (Dept. 20)	\$1,000	\$1,500
26. NJ Invasive Species Strike Team (Dept. 20)	\$300	\$300
27. Stroud Water Research Macroinvertebrates Analysis (Dept. 20)	\$5,200	\$0
28. Lockatong ISCO Monitoring (Dept. 20)	\$0	\$4,000
29. D&R Canal ISCO Monitoring (Dept. 20)	\$0	\$4,000
30. Services-Emergency Engineering Services (Dept 30)	\$2,500	\$2,500
31. Underground Storage Tank-CEA Report (Dept. 30)	\$11,000	\$11,000
32. Underground Storage Tank Groundwater Test (Dept. 30)	\$2,500	\$2,500
33. Services - USGS Cooperative Agreement River Gauging - Maintenance of Raritan Basin Stream Gauging Stations and the Delaware & Raritan Canal Gauging at Kingston per USGS/DWR/NJWSA Agreement (Dept. 31)	\$72,000	\$72,000
34. Services-USGS Spruce Run Gauging	\$17,000	\$17,000
35. Maintenance of two stations on Streams feeding Spruce Run not covered under State Cooperative Agreement (Dept. 31)		
36. Water Testing	\$2,400	\$2,400
37. Water Testing and Sampling to comply with the Safe Water Drinking Act (Dept. 31)		
38. Services-Water Sampling and Testing as per NJDWR Requirements - A) RT 202 Stockpile Site (Dept 32)	\$5,000	\$5,500
39. Maintenance of USGS Gauges at Washington Crossing and Pricaris Waste Gate (Dept. 32)	\$13,500	\$20,000
40. Safety Suggestion Program, Poster and Promotional Materials, Safety Incentive Program (Dept. 36)	\$9,700	\$9,700
41. Pulmonary Testing and Physicals (Dept. 36)	\$5,000	\$5,000
42. Annual Contributions to Fire Companies and Rescue Squads (Dept. 36)	\$1,300	\$500
43. Hepatitis Vaccinations (Dept. 36)	\$800	\$800
44. Calibration for the Pota-Count Respirator (Dept. 36)	\$700	\$900
TOTAL	<u>\$477,600</u>	<u>\$498,140</u>

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 4 - Projected FY 2017 New Jersey Water Supply Authority Insurance Program**

<u>Policy</u>	<u>Raritan Basin System</u>	<u>Manasquan Reservoir System</u>	<u>Manasquan Water Treatment Plant and Transmission System</u>	<u>Total Premium</u>
<b>Property</b> Limit \$150 million, Limit \$25m BI Deduct: \$100k all perils \$250k Deduct dams, dikes / \$1m Deduct Canal flood	\$618,526	\$207,930	\$50,886	\$877,342
<b>General/Products Liability</b> Limit \$1 million Deduct: \$150k	\$108,676	\$10,161	\$2,110	\$120,947
<b>Environmental Impairment Liability</b> Limit \$10 million Deduct: \$100k	\$21,457	\$2,006	\$417	\$23,880
<b>Workers' Compensation</b> Limit \$1 million	\$205,001	\$26,354	\$27,613	\$258,968
<b>Employer Liability</b> Limit \$1 million	Included in Workers' Comp	Included in Workers' Comp	Included in Workers' Comp	Included in Workers' Comp
<b>Umbrella Liability</b> Limit \$20 million	\$283,672	\$26,521	\$5,507	\$315,700
<b>Business Automobile</b> Limit: \$1 million G/L, \$0 pd Deduct: \$50k, G/L	\$11,739	\$2,084	\$477	\$14,300
<b>Public Officials Liability</b> Limit \$5 million/\$1million crime Deduct: \$100k/\$50k c. crime	\$50,053	\$4,680	\$972	\$55,705
	\$50,053	\$4,680	\$3,408	\$3,408
	\$50,053	\$4,680	\$4,380	\$59,113
<b>Travel Accident</b> Limit \$2 million	\$876	\$82	\$17	\$975
<b>TOTAL:</b>	\$1,300,000	\$279,818	\$91,407	\$1,671,225

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 5 - Recap Of Allocation Of Headquarters General And Administrative Expenses Charged  
To The Manasquan Water Supply System**  
Fiscal Year 2017 (7/1/16-6/30/17)

	<b>Total Headquarters Charge</b>	<b>Manasquan Reservoir System</b>	<b>Manasquan WTP/TS</b>
Budgeted-Appendix I, amount to be charged to Manasquan System for F/Y17 (7/1/16-6/30/17)	\$823,329	\$709,165	\$114,164
F/Y15 Adjustment as per audited Expenditures:			
Budgeted as per rate schedule for F/Y15 (7/1/14-6/30/15). Amounts paid during F/Y15 to Raritan Basin System.	\$781,349	\$678,114	\$103,235
Actual allocation based upon audited expenditures F/Y15 (7/1/14-6/30/15) - Appendix II	<u>\$702,080</u>	<u>\$609,319</u>	<u>\$92,761</u>
Adjustments F/Y15	<u>(\$79,269)</u>	<u>(\$68,795)</u>	<u>(\$10,474)</u>
Net Allocation for F/Y2017 Budget	<u><u>\$744,060</u></u>	<u><u>\$640,370</u></u>	<u><u>\$103,690</u></u>
Estimate	<u>\$744,000</u>	<u>\$640,000</u>	<u>\$104,000</u>



NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 6 - Proposed Capital Equipment Budget**  
Fiscal Year 2017

	Description	(R) Replacement (A) Addition	Year of Purchase	Dollar Value	Depreciation Reserve
<b>INFORMATION SYSTEMS</b>	(1) VIDEO SYSTEM - ANNEX	(A)		1,500	
	(1) VIDEO SYSTEM - CONF ROOM	(A)		1,500	
<b>FACILITIES</b>	(1) BOILER REPLACEMENT BUSHER RESIDENCE	(R) - original	1991	10,000	0
	(3) DOOR REPLACEMENT - SINGLE	(R) - original		15,000	0
	(1) DOOR REPLACEMENT - DOUBLE	(R) - original		9,000	0
	SINGLE DOORS - COMPRESSOR ROOM, PAINT ROOM AND CARPENTERS SHOP				
	DOUBLE DOORS - BOILER ROOM				
	(2) PORTABLE WATER TANKS	(R)		20,000	0
	(1) BUMPER CRANE FOR VEHICLE NJWA 18	(A)		5,500	
	(1) TON HD DECK OVER TRAILER	(R) EQ1707	1999	20,000	12,820
	(1) HYDRAULIC POLE SAW	(R) PE1613	1997	2,000	1,072
	(1) AIR COMPRESSOR RVMB	(R) PE742	1986	7,000	1,685
<b>GROUNDS</b>	(1) TOW BEHIND AIR COMPRESSOR	(R) PE1480	1994	15,000	11,566
	(1) TRACTOR TS100	(R) PE1751	2000	90,000	63,425
	(1) NJWA-37 SMALL SUV	(R) TR2196	2011	30,000	22,413
	(1) NJWA-38 SIX MAN PICKUP	(R) TR2135	2009	40,000	28,557
	(1) NJWA-46 SIX MAN PICKUP	(R) TR2136	2009	40,000	28,557
<b>CANAL</b>	(2) REPLACE RTU @ PERDICARIS & WASH. CROSSING	(R)		30,000	
	(1) REPLACE DUMP BODY ON NJWA -30	(R)		25,000	
	(2) 9.9 HP, 4 STROKE OUTBOARD BOAT MOTOR(S)	(R) 2209/2210		5,000	2,190
	(1) TRUCK MOUNT AIR COMPRESSOR	(A)		3,500	
<b>AUTO SHOP</b>	(1) TRUCK MOUNT AIR COMPRESSOR	(A)		3,500	
	(2) REPLACE TWO AED UNITS	(R) EQ2203, 2204	2012	4,000	1,886
<b>SAFETY</b>	(2) REPLACE TWO AED UNITS	(R) EQ2203, 2204	2012	4,000	1,886
<b>SECURITY</b>	(1) SECURITY VEHICLE - NJWA-13 FORD EXPLORER	(R) TR2216	2013	32,000	24,708

	TOTAL COST	\$406,000	\$198,879
LESS AMOUNT CHARGED TO DEPRECIATION RESERVE		(198,879)	
	NET TOTAL	\$207,121	

mc:a:capeqp.xlw

LESS AMOUNT CHARGED TO CAPITAL EQUIPMENT RESERVE \$0

02-Oct-15

LESS ADDITIONAL AMOUNT CHARGED TO DEPRECIATION RESERVE (\$24,218)

TOTAL \$182,903

AMOUNT FUNDED FOR FY2017 **\$182,900**

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 7 - Estimate Of Interest Income For Fiscal Year 2017 Budget**

Fund/Reserve	TD Bank Funds	Long-Term Investments
Operating	\$600,000	\$0
Reserve for O & M	\$500,000	\$1,500,000
Pumping Reserve	\$600,000	\$0
Self-Insurance Reserve	\$1,000	\$700,000
Rate Stabilization Fund	\$1,000,000	\$0
Estimated Total	\$2,701,000	\$2,200,000
	$\$2,701,000 \times .25\% =$	\$6,753
	$\$2,200,000 \times 1.30\% =$	\$28,600
	Total	\$35,353
	Estimate	\$35,400

Short-Investments

TD Bank  
Managed Rate of .25%  
95% of the 30 Day Libor After the  
Compensating Balance Has Been Satisfied

Long-Term Investments

JP Morgan  
New Jersey State G/O Bonds  
Due 07/15/2016 Yield to Maturity 1.30%  
Expect Similar Returns After Maturity

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 8 - Unanticipated Revenue**

Funds to be appropriated Into the Rate Stabilization Fund for Fiscal Year 2017

			<u>Amount</u>
F/Y2015 Net Year-End Balance			\$341,000.00
<u>Overdrafts</u>	<u>Invoice No.</u>	<u>Billed</u>	<u>Amount</u>
East Windsor Municipal Utilities Authority	800	11/10/14	\$11.14
	990	07/22/15	\$1,892.80
Heron Glen	801	11/10/14	\$88.62
	803	11/10/14	\$396.78
	991	07/22/15	\$1,187.70
Raritan Valley Country Club	802	11/10/14	\$2,999.06
	992	07/22/15	\$37.54
Somerset County Park Commission	804	11/10/14	\$948.54
Trump National	805	11/10/14	\$484.06
Village Grande	806	11/10/14	\$101.15
		Total	\$8,147.39
		Amount used in FY2016	<u>-\$1,048.30</u>
		NET	\$7,099.09
 <u>Overdrafts Not Billed, Accrued through July, 2015</u>			
NJAW, Somerset County Park, Trump National, Roxiticus, Raritan Valley CC, Washinton Township MUA, Royce Brook, Greenbriar Stonebridge, Hamilton Farms Golf Club, East Brunswick			\$206,052
 <u>Other Sources of Funds</u>			
Dredging Deferral			\$1,570,000.00
		Grand Total	<u>\$2,124,150.86</u>
		FY17 Budget	<u>\$2,124,150.00</u>

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 9 - Fund Balances as of 6/30/15**

\*\*Final\*\*

	REVENUE FUND	OPERATING ACCOUNT	OPERATING FUND	O & M RESERVE	INVESTMENTS O & M RESERVE	TOTAL
BALANCE 6/30/15	\$289,108	\$1,187,170	\$972,749	\$2,166,216	\$1,762,155	\$6,377,398
Deduct: Accrued expenses to be paid as of 6/30/15			0			0
Deduct: June 1st billing, received			(187,291)			(187,291)
			(349,339)			(349,339)
Adjusted Balances 6/30/15	\$289,108	\$1,187,170	\$436,119	\$2,166,216	\$1,762,155	\$5,840,768
INCOME						
Reimbursement Manasquan						
Receipt of Headquarters Overhead Expenses for 7/10/15						
			169,000			169,000
Operating transfer	(200,000)	(1,100,000)	1,300,000			0
EXPENSES						
O & M Expenses - (A/P 6/30/15)						
Includes accrued Payroll and Insurance thru 6/30/15						
			(581,776)			(581,776)
Capital items to be purchased by 6/30/15						
Various Reserve contributions (one month)						
			0			0
			0			0
PROJECTED BALANCE AT 6/30/15	\$89,108	\$87,170	\$1,323,343	\$2,166,216	\$1,762,155	\$5,427,992

Note 1. Unanticipated Revenues for FY 17						
(overdrafts in F/Y 15 to be available for appropriation to Rate Stabilization for FY16/FY17)				Less: FY2016 O & M reserve balance (3 mos required by resolution)		(3,363,975)
NJ American	\$50,667.80			Adjusted balance of funds available 6/30/15		2,064,017
East Windsor MUA	1,903.94					
Raritan Valley	3,053.70					
Trump National	1,715.16			Use of Available Funds		
Village Grande at Bear Creek	101.15					
Roxiticus Golf Club	704.43					
Somerset County	1,036.42			Unanticipated revenues (overdrafts in F/Y 15 to be available for appropriation to Rate Stabilization Fund for FY16/FY17 (Note 1)		(60,493)
Washington Township MUA/Heron Glen	1,310.61					
	\$60,493.21			Rate Stabilization Fund Transfer for FY16		0
				Projected Net Balance		<b>\$2,003,524</b>

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 10 - Projected Fiscal Year 2017 Operations & Maintenance Component**  
**Sales Base**

New Jersey Environmental Infrastructure Financing Program  
Debt Service Assessment

USER	DAILY ALLOCATION (MGD)	DAYS PER YEAR	TOTAL MG/YR	ANNUALIZED SALES BASE (MGD)
Duke Farms	0.075	N/A		0.000
East Brunswick Twp	8.000	365	2,920.000	8.000
NJ American Water Company	126.600	365	46,209.000	126.600
Mercer County Park Commission – Golf	0.132	184	24.300	0.067
Middlesex Water Co.	27.000	365	9,855.000	27.000
New Brunswick, City of	10.500	365	3,832.500	10.500
North Brunswick Twp.	8.000	365	2,920.000	8.000
Princeton University	0.150	365	54.750	0.150
Trenton Country Club	0.126	365	46.000	0.126
United Water Lambertville	0.490	365	178.850	0.490
Ridge at Back Brook	0.111	365	40.510	0.111
Roxbury Water Company	0.041	365	15.000	0.041
Royce Brook Golf Club	0.165	365	60.230	0.165
Hunterdon County Golf (Heron Glen)	0.079	365	28.800	0.079
Raritan Valley Country Club	0.012	365	4.380	0.012
East Windsor Municipal Utilities Authority	0.011	365	4.000	0.011
Somerset County Park Commission (Neshanic Valley Golf Club)	0.142	365	51.750	0.142

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 10 (Cont.) - Projected Fiscal Year 2017 Operations & Maintenance Component**  
**Sales Base**

New Jersey Environmental Infrastructure Financing Program  
Debt Service Assessment

USER	DAILY ALLOCATION (MGD)	DAYS PER YEAR	TOTAL MG/YR	ANNUALIZED SALES BASE (MGD)
Lamington Farms LLC (Trump National Golf Club)	0.170	365	62.100	0.170
Morris County Municipal Utilities Authority	0.079	365	28.830	0.079
Applied Waste Water Management, Inc. (Mt. Olive Township)	0.010	365	3.554	0.010
Washington Township Municipal Utilities Authority	0.035	365	12.775	0.035
Borough of Glen Gardner	0.008	365	2.775	0.008
Roxiticus Golf Club	0.046	365	16.790	0.046
Hamilton Farm Golf Club	0.138	365	50.400	0.138
Springdale Golf Club	0.098	365	35.640	0.098
NJ Department of Corrections	0.025	365	9.250	0.025
Stonebridge Community Assoc.	0.081	365	29.565	0.081
Village Grande @ Bear Creek	0.074	365	27.010	0.074
Eastern Concrete Materials	0.023	365	8.500	0.023
Hunterdon Medical Center	0.031	365	11.000	0.031
Princeton University Operations	0.027	365	9.855	0.027
<b>TOTAL SALES BASE</b>				<b>182.339</b>

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 11 - Operations And Maintenance Rate Component**  
Fiscal Year 2017

Funds Required for F/Y2017 Budget

Proposed Operating Expense and Capital Budget	\$13,616,024
Less Miscellaneous Revenues & Interest Income	(\$87,600)
Other Available Funds	(\$2,124,150)
Net Budget Requirement	\$11,404,274
Less: 182.339 x 171.00 x 61Days (Cash received in July and August for water used in May and June based on \$171.00/mg)	(\$1,901,978)
 Additional Revenue required to cover Operations and Maintenance Expense through 6/30/17	 \$9,502,296

Computation of Operations & Maintenance Rate for Fiscal Year 2017

Sales Base	
Period 7/1/16 to 4/30/17 304 days x 182.339 mgd	= 55,431.06 mg
 Required Operations & Maintenance Rate F/Y2017	
<u>\$9,502,296 mg</u>	= \$171.00 mg
55,431.06 mg	

NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM

**Schedule 12 - Debt Service Rate Component For NJEIT Loan Repayment**

Effective July 1, 2016, (F/Y2017, July 1, 2016-June 30, 2017)

Total due on Principal and Interest \$1,664,100/ year

$$\text{Debt Service Rate for NJEIT Loan} = \frac{\$1,664,100/\text{ year}}{182.339 \text{ mgd} \times 365 \text{ days}} = \$25.00 / \text{mg}$$

\*This rate may be subject to future adjustments based on actual loan terms.



**NEW JERSEY WATER SUPPLY AUTHORITY  
RARITAN BASIN SYSTEM**

**Schedule 13 - Capital Improvement Program**  
Fiscal Years 2016-2020

Rate Assumption Per Million Gallons:

PROJECT	ESTIMATED PROJECT COST	Period First Identified	Priority	Prior Years	\$33	\$33	\$38	\$38	\$38
					FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Refurbishment of the Main Pumps & Motors 1 & 6	\$ 1,300,000	2008	High	872,668	427,332				
Asset Management Plan for SBPS	\$ 220,000	2009	High	211,041	8,959				
Dredging Kingston & Anwell Road - Design engineering only	\$ 1,600,000	2006	High	1,385,983	150,000	64,017			
Dredging Kingston & Anwell Road - Rt 202 Stockpile site only	\$ 1,500,000	2006	High	-			1,500,000		
Dredging Kingston & Anwell Road - Construction engineering (bond)	\$ -	2006	High	-					
Dredging Kingston & Anwell Road - (bond)	\$ -	2006	High	-					
Lambertville Multi-Use Trail	\$ 187,934	2012	High	181,934	6,000				
Rehab. Western Embankment Stockton Borough	\$ 3,000,000	2006	High	158,353	200,000	800,000	1,841,647		
Rehab Swan Creek Culvert & Aqueduct new project incl culvert liner work	\$ 1,500,000	2015	High	-	200,000	400,000	900,000		
Rehabilitation of the Cherry Tree Lane Spillway	\$ 1,500,000	2010	High	105,745	750,000	644,255			
Improvements at Canal Office	\$ 1,200,000	2010	High	887,026	312,974				
Dam Improvements as recommended by TRB (preliminary eng only)	\$ 2,093,944	2013	High	1,505,916	588,028				
Engineering for RV Dike post 2015 TRB	\$ 350,000	2015	High	-	350,000				
Design improvements to RV dams - Design engineering only	\$ 3,000,000	2015	High	-	1,500,000	1,500,000			
Round Valley Dam Improvements - (bond)	\$ -	2015	High	-					
Construction engineering management for RV dam improvements (bond)	\$ -	2015	High	-					
QA/QC for design of RV dam improvements	\$ 500,000	2015	High	-	300,000	200,000			
QA/QC for construction of RV dam improvements (bond)	\$ -	2015	High	-					
Rehabilitate hydraulic valve on RV South Dam low level release	\$ 300,000	2015	High	-	100,000	200,000			
Rehab 10-inch cast iron pipe connect RV-S dam vault to Forcemain	\$ 300,000	2015	High	-			60,000	240,000	
Rehabilitation of Carnegie Lake Creek Aqueduct	\$ 1,500,000	2015	High	-	100,000	200,000	1,200,000		
New 2D Inundation mapping for Round Valley and Spruce Run Reservoir	\$ 500,000	2015	High	-	500,000				
Rehab of Ten Mile Waste Gate	\$ 150,000	2010	High	-	150,000				
Dredging of Intake Pond at SBPS	\$ 600,000	2005	High	-	150,000	450,000			
	\$ 21,301,878								
Rehab of Upper Canal Embankment - Raven Rock to Pralville	\$ 4,250,000	2006	Med High	90,532	100,000	1,250,000	1,250,000	1,559,468	
Rehab of Canal Flow Control Structures Griggstown and 10-Mile Locks	\$ 1,500,000	2000	Med High				100,000	1,000,000	400,000
Refurbishment of the Main Pumps & Motors 5 & 7	\$ 1,300,000	2008	Med High			300,000	1,000,000		
Removal of Sediment from Rt. 1 Conduit	\$ 400,000	2013	Med High		150,000	250,000			
Replacement of Ice Deflectors at SBPS	\$ 75,000	2014	Med High		50,000	25,000			
Rehab of the Landing Lane Spillway	\$ 500,000	2013	Med High		200,000	300,000			
Repair of Pipe at Whitehead Road	\$ 500,000	2012	Med High					500,000	
Rehabilitation Work at Washington Crossing Spillway	\$ 200,000	2012	Med High					200,000	
Washington Crossing Waste Gate Repair / Replacement	\$ 150,000	2015	Med High		150,000				
Security System Upgrade	\$ 125,000	2003	Med High		25,000	25,000	25,000	25,000	25,000
	\$ 9,000,000								
Alexauken Creek Aqueduct	\$ 750,000	2015	Medium					500,000	250,000
Roof Replacement North & South Towers	\$ 100,000	2011	Medium				100,000		
Replacement of Through the Wall HVAC Units in SRA	\$ 150,000	2011	Medium			150,000			
Rehab of Culvert at Station 2550+90 (1 mile upstream of 10-mile)	\$ 700,000	2008	Medium						700,000
Rehab of Traprock Spillway	\$ 900,000	2010	Medium						900,000
	\$ 2,600,000								
Dredging between Landing Lane and Route 18 - engineering	\$ -	2007	Low						
Dredging of Canal Between Lambertville and Route 1	\$ -	2015	Low						
Dredging of Canal Between Anwell Road and 10 Mile	\$ -	2015	Low						
Construction Bedload Stone Trap @ Wickechoke Creek	\$ -	1995	Low						
Cutoff Wall in Shipetaukin Creek Guard Bank	\$ -	2005	Low						
Wickechoke Creek Gates Abandonment	\$ -	2015	Low						
Rehab of Waste Gate d/s of 10 Mile - woodwork on façade	\$ -	1990	Low						
Rebuild Stone Embankment at the 10 Mile Waste Gate	\$ -	1990	Low						
Rehab of Gold Run Spillway	\$ -	2008	Low						
Rehab of 6-Mile Run Culvert Headwall	\$ -	2008	Low						
Carnegie Lake Culverts Investigation / Isolation	\$ -	2015	Low						
Raven Rock retaining wall downcanal of Lock	\$ -	2015	Low						
Refurbishment of the Main Pumps & Motors 4 & 8	\$ -	2015	Low						
Refurbishment of the Main Pumps & Motors 3 & 9	\$ -	2015	Low						
Refurbishment of the Main Pumps & Motors 2 & 10	\$ -	2015	Low						
Canal Culvert Rehabilitation 2249+79 (Suydam)	\$ -	2015	Low						
Canal Culvert Rehabilitation 2661+86 (Randolph Brook)	\$ -	2015	Low						
Canal Culvert Rehabilitation 2992+34 (Mile Run Culvert)	\$ -	2015	Low						
Concrete Repairs at the Sullivan Way Aqueduct	\$ -	2007	Low						
Rehab of Spillway u/s of Griggstown Lock	\$ -	2010	Low						
Rehab of the Four Mile Spillway	\$ -	2010	Low						
Pipeline Evaluation - Whitehouse Release Pipeline	\$ -	1990's	Low						
Pipeline Evaluation - RV Force Main	\$ -	1990's	Low						
	\$ -								
<b>TOTAL</b>	<b>\$ 32,901,878</b>			<b>5,399,198</b>	<b>6,468,293</b>	<b>6,758,272</b>	<b>7,976,647</b>	<b>4,024,468</b>	<b>2,275,000</b>
<b>Balance CIP</b>				<b>14,661,879</b>	<b>11,136,877</b>	<b>6,610,878</b>	<b>1,199,273</b>	<b>(260,153)</b>	<b>36,818</b>

The estimated project costs listed includes engineering, cultural, construction and miscellaneous expenses.

Funds in CIP as of June 30, 2015 is \$13,411,879 plus \$1,250,000 from Capital Improvements Investments

Estimated cost for dredging of the Canal between Kingston & Anwell Road is \$35,000,000 plus engineering & Cultural Resource inspections during construction.

The cost of removal of sediment from the 202 stockpile site is included in the CIP since it will not be part of the NJEIT bonding. Engineering and cultural costs during construction will be included in loan for project.

Round Valley Dam Improvements: Costs of remedial work will need to be bonded. Preliminary estimate \$60 million plus engineering construction management and inspection.

**RARITAN BASIN SYSTEM  
CAPITAL IMPROVEMENT PROGRAM  
Fiscal Years 2016 – 2020  
Updated – August 2015**

The following is a description of projects that the Authority anticipates being funded from the Capital Improvement Program in Fiscal Years 2016 - 2020. Discussion also includes projects that may be delayed beyond FY 2020 due to funding.

#	HIGH PRIORITY
1	Refurbishment of the Main Pumps & Motors 1 & 6
2	Asset Management Plan for SBPS
3	Dredging Kingston & Amwell Road - Design engineering only
4	Dredging Kingston & Amwell Road - Rt 202 Stockpile site only
5	Dredging Kingston & Amwell Road - Construction engineering only (bond)
6	Dredging Kingston & Amwell Road - Construction \$35M (bond)
7	Lambertville Multi-Use Trail
8	Rehab. Western Embankment Stockton Borough
9	Rehab Swan Creek Culvert & Aqueduct new project incl culvert liner work
10	Rehabilitation of the Cherry Tree Lane Spillway
11	Improvements at Canal Office
12	Dam Improvements as recommended by TRB (preliminary eng only)
13	Engineering for RV Dike post 2015 TRB
14	Design improvements to RV dams - Design engineering only
15	Round Valley Dam Improvements - Construction (bond)
16	Construction engineering management for RV dam improvements (bond)
17	QA/QC for design of RV dam improvements
18	QA/QC for construction of RV dam improvements (bond)
19	Rehabilitate hydraulic valve on RV South Dam low level release
20	Rehab 10-inch cast iron pipe connect RV-S dam vault to Forcemain
21	Rehabilitation of Carnegie Lake Creek Aqueduct
22	New 2D Inundation mapping for Round Valley and Spruce Run Reservoir
23	Rehab of Ten Mile Waste Gate
24	Dredging of Intake Pond at SBPS
	<b>MEDIUM / HIGH PRIORITY</b>
25	Rehab of Upper Canal Embankment - Raven Rock to Prallsville
26	Rehab of Canal Flow Control Structures Griggstown and 10-Mile Locks
27	Refurbishment of the Main Pumps & Motors 5 & 7
28	Removal of Sediment from Rt. 1 Conduit
29	Replacement of Ice Deflectors at SBPS

30	Rehab of the Landing Lane Spillway
31	Repair of Pipe at Whitehead Road
32	Rehabilitation Work at Washington Crossing Spillway
33	Washington Crossing Waste Gate Repair / Replacement
34	Security System Upgrade
	<b>MEDIUM PRIORITY</b>
35	Alexauken Creek Aqueduct
36	Roof Replacement North & South Towers
37	Replacement of Through the Wall HVAC Units in SRA
38	Rehab of Culvert at Station 2550+90 (1 mile upstream of 10-mile)
39	Rehab of Traprock Spillway
	<b>LOW PRIORITY</b>
40	Dredging between Landging Lane and Route 18 - engineering
41	Dredging of Canal Between Lambertville and Route 1
42	Dredging of Canal Between Amwell Road and 10 Mile
43	Construction Bedload Stone Trap @ Wickecheoke Creek
44	Cutoff Wall in Shipetaukin Creek Guard Bank
45	Wickecheoke Creek Gates Abandonment
46	Rehab of Waste Gate ds of 10 Mile - woodwork on façade
47	Rebuild Stone Embankment at the 10 Mile Waste Gate
48	Rehab of Gold Run Spillway
49	Rehab of 6-Mile Run Culvert Headwall
50	Carnegie Lake Culverts Investigation / Isolation
51	Raven Rock retaining wall downcanal of Lock
52	Refurbishment of the Main Pumps & Motors 4 & 8
53	Refurbishment of the Main Pumps & Motors 3 & 9
54	Refurbishment of the Main Pumps & Motors 2 & 10
55	Canal Culvert Rehabilitation 2249+79 (Suydam)
56	Canal Culvert Rehabilitation 2661+86 (Randolph Brook)
57	Canal Culvert Rehabilitation 2992+34 (Mile Run Culvert)
58	Concrete Repairs at the Sullivan Way Aqueduct
59	Rehab of Spillway u/s of Griggstown Lock
60	Rehab of the Four Mile Spillway
61	Pipeline Evaluation - Whitehouse Release Pipeline
62	Pipeline Evaluation - RV Force Main

**Item #1 – Refurbishment of Main Pumps and Motors at SBPS**  
**& Item #2 – Asset Management Plan for SBPS**

The South Branch Pumping Station (SBPS) was constructed in the 1960's to pump water into Round Valley Reservoir. The main pumps, motors and associated equipment at the station are infrequently operated (usually one month a year to maintain the pool elevation, as required). Maintenance pumping is done periodically to maintain the equipment. As the demand on Round Valley Reservoir increases, so will the need to pump water through the station. There may also be the need on the horizon to be able to reliably refill the reservoir following a period of sustained drawdown.

Approximately 1.9 billion gallons of water were pumped into Round Valley Reservoir during the April – May 2009 pumping program. Lessons learned from the program demonstrated the need to repair the baseplates under the pumps and motors to prevent movement and maintain alignment between the pumps and motors.

The Authority retained Hatch Mott MacDonald (HMM) to prepare an asset management plan for the SBPS and prepare specifications for the refurbishment of the pump units. All ten pumps have similar baseplate and alignment problems, but only two (pump assemblies 1 & 6) of the ten are being refurbished at the present time under the current contract.

Inspections of the motors also showed the deterioration of the stator winding insulation. Deterioration of the insulation of the stator windings is attributed to the age of the units and the humidity in the building. The extent of the deterioration in each unit is unknown because the entire stator cannot be inspected without full disassembly of the motors at an authorized shop. Other service requirements to the units can only be ascertained when the units are removed and disassembled.

Refurbishment of the first two pump and motor assemblies was awarded to Longo Electrical-Mechanical, Inc. of Wharton, NJ in 2013 for an amount not to exceed \$1,239,700. Approval was authorized for allowance items specified in the bid documents for an amount not to exceed \$445,200. These allowance items are for parts needed for the pump refurbishment that cannot be determined until the units are undergoing refurbishment. To date only \$33,381.60 for the purchase of two casing rings was authorized from the allowance items.

It is anticipated that units 1 and 6 will be reinstalled and reconnected in the fall of 2015. Refurbishment of the next two units, units 5 and 7, is planned for FY 2017 and 2018. Pump assemblies 5 & 7 are slated to be the next pair of pumps refurbished by the Authority, once pumps 1 & 6 are reinstalled and successfully tested by the Contractor in the fall of 2015. An analysis of this refurbishment work will be conducted to formulate a “lessons learned” report and modify the scope and technical specifications as necessary to try to address some of the delays experienced by the Contractor while refurbishing units 1 & 6. With the foreseen sustained pumping periods on the horizon (due to anticipated reservoir drawdown and refilling in the near future), the demands on these pumps will increase, necessitating the continued refurbishment of the remaining pumps and motors.

Prior to start-up of the refurbished pumps, an electrical testing program of the primary power feeding the pumps must be completed. Staff is preparing a solicitation to retain an electrical testing firm to perform the testing as close to running the pumps as possible.

**Item #3 Dredging between Kingston and Amwell Road – Design Engineering**

**Item #4 Dredging between Kingston and Amwell Road – Rt 202 Stockpile Site**

**Item #5 Dredging between Kingston and Amwell Road – Construction Engineering (bond)**

**Item #6 Dredging between Kingston and Amwell Road – Construction \$35M (bond)**

Flow in the 10.5-mile reach of the Canal between Lincoln Highway (Route 27 just east of Kingston) and Amwell Road in Franklin Township, Somerset County is being hindered by accumulated sediment. The flow restriction is aggravated by weed growth during the summer months. To compensate for these flow restrictions, the Canal is operated at a level that is higher than desirable and causes water to overtop normally dry spillways. Five major water purveyors divert water from the Canal, downstream of this area, including North Brunswick Township, NJ American Water, Middlesex Water Company, East Brunswick Township and the City of New Brunswick.

Staff took cross-sections in this reach during 2007 and 2008 to estimate the quantity of accumulated sediment. Analysis of the cross-sections indicated that an estimated 250,000 cubic yards of sediment have accumulated in the Canal and must be removed and properly disposed.

Additionally, the US Route 202 sediment stockpile site in Delaware Township, Hunterdon County (just north of Lambertville) is reaching capacity. Removal and disposal of 45,000 cubic yards of sediment is included as part of the dredging project.

Urban Dredging Consultants Joint Venture was selected to plan the dredging program including development and execution of a proactive public participation program. A bathymetric survey was conducted to confirm the quantity of sediment to be removed. The bathymetric survey confirmed the estimated quantity to be removed. Sediment cores were taken to determine the characterization of the material to be removed.

Urban Dredging considered the following four methodologies for the proposed dredging project - mechanical excavation (in dry), mechanical dredging (in wet), hydraulic dredging with Geobags and hydraulic dredging with mechanical dewatering. All four considered methodologies have environmental concerns but hydraulic dredging methodologies reduce these concerns since the slurry would be conveyed in a pipe floating in the Canal that will carry the material to a temporary staging area for dewatering.

An Environmental Impact Assessment and the necessary public information meetings were held between 2010 and 2013. While not finalized, five access points and the staging area have been selected and the completion of the design documents is proceeding. The one major remaining factor to be decided is the disposal (final destination) of the dredged material.

Removal of sediment from this reach is planned for FY 2018 - 2020. The application for funding through the NJ Environmental Infrastructure Trust (NJEIT) will be resubmitted and formulated to cover the full estimated construction cost of the dredging and other allowable expenses currently estimated at \$40,000,000. The costs shown in the CIP include design costs and cultural resource services incurred before the loan is authorized. The Authority also solicited a preliminary cost proposal from the Engineer for full-time inspection and construction management (for the 3 years of construction), which can also be bonded with the Construction cost.

Removal and disposal of 45,000 cubic yards of sediment from the US Route 202 stockpile site cannot be funded through the NJEIT and is also included in this CIP. The estimated cost for removal and disposal of this sediment is \$1,500,000.

#### **Item #7 - Lambertville Multi-Use Trail**

A 36 foot section of the multi-use trail between Coryell and Bridge Streets in the City of Lambertville, Hunterdon County collapsed into the Canal in 2012. The multi-use trail is on the east side of the Canal and is a well-traveled path in the City. The area was temporarily stabilized and was covered with a tarpaulin to prevent further erosion. Repair of this section of the Canal embankment was a joint effort between the Authority and the State Park Service.

Repair of the embankment consisted of the installation of cantilevered steel sheeting driven from a parking lot across the Canal. All approvals required for this project were obtained and the bulk of the construction was completed in December 2014, with site restoration continuing into 2015.

#### **Item #8 - Rehabilitation of the Western Embankment, Stockton Borough**

The mile long reach of the Western Embankment between the Prallsville Lock at Station 155+00 and the railroad bridge crossing over the Canal at Station 205+00 is a narrow embankment that separates the Canal from the Delaware River. During extreme flooding events of the Delaware River, the embankment is threatened by the extreme floodwaters from the river. It was overtopped during major storm events in 2005 and again in 2006 where the embankment breached. In 2011, Tropical Storms Irene and Lee caused severe flooding of the Delaware River. While the embankment did not breach, over 1,000 linear feet of the embankment experienced slope failure on the Canal side due to the saturation of the embankment from the river, and significant amounts of material slid into the Canal compromising the cross-sectional area of the embankment.

Emergency actions were taken to prevent a breach of the embankment. These emergency actions included a quarry processed blend which was placed via conveyor belt from the opposite side of the Canal due to the unsafe nature of the embankment. The quarry processed blend was put in with varying levels of compaction. While a breach was prevented, additional long-term repair / reinforcement work on the embankment is required to reinforce the repairs. The embankment is compromised by extreme flooding events in the Delaware River resulting in the continued potential of further breaches. The embankment needs improvements to increase the factor of safety for resisting sliding due to erosion caused by the saturation that occurs when the river

approaches the top of the embankment, or the threatens to overtop the entire embankment. The possibility of installing sheeting along the entire length of this stretch is being considered. Other alternatives to be considered include adding fill to the embankment or improvement of the stone armor of the embankment.

A professional engineering services contract was awarded in March 2014 to a team led by TranSystems. Hunter Research was selected as the Cultural Resource consultant for the project. To date, borings were taken through the embankment and preliminary meetings were held with the permitting agencies. The Authority is eagerly awaiting the submittal of a Schematic Design Report from the consultant, including a cost-benefit analysis outlining the options and recommendations of the consulting engineering team. At this time, an estimated construction cost of \$3M is included in the CIP, and is projected in FY 2017 & FY 2018.

### **Item #9 - Rehabilitation of the Swan Creek Culvert & Aqueduct**

The Swan Creek Aqueduct and culvert is located at approximate Station 363+00 on the Canal in the City of Lambertville, Hunterdon County. The aqueduct structure was erected to carry the Canal over Swan Creek with the secondary function of acting as a spillway for the Canal. An adjacent culvert also contributes to the conveyance of Swan Creek under the Canal, the towpath, and the former Belvedere-Delaware Railroad. The aqueduct is a concrete and masonry structure that was partially rehabilitated in 1989. The waste gates were replaced, some of the masonry was reconstructed, and some of the existing concrete was repaired with shotcrete.

Repairs were made to the structure in 2006 following major flooding events on the Delaware River. Significant leakage occurred through the masonry wall on the southeast part of the structure where Swan Creek enters the opening under the aqueduct. A contractor was hired on an emergency basis to pump pressure grout behind the wall where a sinkhole had formed resulting from the seepage. The grout significantly slowed the leakage, but did not stop it completely. The voids left by the fallen stones still remain.

A jet grout seepage cutoff wall was constructed in April 2009 to eliminate seepage through the wingwall. Most of the seepage was stopped with the jet grout seepage cutoff wall. An additional phase of repairs was conducted in 2014, which included rehabilitation of masonry and concrete and replacement of the bent stem for one of the two waste gates.

The scope of work for the 2014 repair project was reduced significantly during construction due to dewatering concerns, as well as safety concerns. The corrugated metal liner in the North culvert shows signs of being corroded which limits the amount of work that could be conducted safely in the culvert.

A Scope of Services is being developed to retain a new consulting engineer to design a new structural liner to guard against further deterioration and concrete spalling. The new design engineer will have to address all of the concerns developed during the 2014 construction, as well as consider design options for the culvert rehabilitation and reinforcement which will not significantly reduce the volumetric flow rate capacities of the culverts.

### **Item #10 - Rehabilitation of the Cherry Tree Lane Spillway**

The Cherry Tree Lane Spillway is located at Station 1269+65 of the Canal approximately 650 feet upstream of the intersection of Whitehead Road and the Canal in Lawrence Township. The spillway structure is located along the Canal right bank with a longitudinal centerline oriented in a northeast direction. The spillway consists of a 201-foot long concrete control overflow weir at elevation 55.5 with a central spillway crest, approximately 82 feet long, at elevation 55. The spillway discharges to a concrete apron that conveys the flow to an arched culvert under the Route 1 Highway (Trenton Freeway Section).

In general, the spillway was found to be in poor condition. The concrete is spalled and cracked, rebar is exposed, and there are significant sections that exhibit mortar loss and exposed concrete aggregate. The crest is eroded, spalling and crumbling. The downstream concrete outlet apron has large voids, is cracked and shows exposed rebar and concrete aggregate. In 2013, a large sinkhole downstream of the spillway was backfilled by Canal maintenance crews.

The Authority proposed rehabilitation of the spillway and the outlet discharge apron to eliminate the current Canal unwanted water spillage and the unsafe structural conditions. The spillway is still functional, but the progressive deterioration threatens its structural integrity. Failure of the spillway would adversely affect the water supply function of the Canal.

In 2014, a professional services contract was made with JMT, who developed a schematic design report for full repair of the structure and presented the report to the DRCC. Following their initial inspections which revealed that the foundation material under the spillway structure was eroded and undermined, an emergency repair was conducted on the spillway in December 2014. The project is receiving all of the required approvals from the DRCC, SHPO, and the NJDEP Parks Department prior to moving into construction in FY 2016 / FY 2017.

### **Item #11 - Improvements at the Canal Office**

The Canal Office was constructed in 1992 in Ewing Township, Mercer County. It was identified that this facility required rehabilitation of the roofing system; the access driveway and parking areas; and the fuel dispensing system. The roofing system had developed numerous leaks that had been patched but a reroofing project was warranted to address the compounding problems. The asphalt driveway and parking area has settled in many places and drainage was a problem. The fuel dispensing system was deteriorated and needed to be replaced. The tanks for the diesel and unleaded gas storage were not affected by this situation, only the gas dispensing island and equipment.

A professional services contract was awarded to Hatch Mott MacDonald in July 2011. Plans and specifications were prepared and permit applications were submitted to the Department of Community Affairs (DCA). Construction has been ongoing and the building improvement construction project is nearing conclusion as of August 2015.



**Item #12 RV Dam Improvements as recommended by TRB (preliminary engineering only)**

**Item #13 Engineering for RV Dike post 2015 TRB**

**Item #14 Design improvements to RV dams - Design engineering only**

**Item #15 Round Valley Dam Improvements - Construction \$60M (bond)**

**Item #16 Construction engineering management for RV dam improvements (bond)**

**Item #17 QA/QC for design of RV dam improvements**

**Item #18 QA/QC for construction of RV dam improvements (bond)**

In connection with the 2013 Formal Dam Inspection, the Authority convened a Technical Review Board (TRB) composed of experts in the field of dam construction on limestone formations; evaluation of critical dam construction features; and geology as they relate to dam construction. This was the first TRB assembled to review information about the construction and operation of the Round Valley Reservoir (dams were constructed in the 1960's) and the first one in 20 years to look at operations data at Spruce Run Reservoir. The TRB recommended additional information gathering on the construction of the dams and the installation of piezometers at the three embankments at Round Valley Reservoir and additional piezometers to be installed at Spruce Run Dam. The TRB recommended that the Side Scan Sonar conducted in the mid-1980s at the Spruce Run Reservoir be repeated and that the drainage pipes at the toe of the SR Dam be visually inspected by remotely operated cameras.

The contract with Gannett Fleming was amended to oversee the performance of the work recommended by the TRB including subcontracting the specialty drillers for the installation of the piezometers at all four dams and separately subcontracting for the performance of the Side Scan Sonar.

The Authority was tasked with compiling and digitizing all available records of the Round Valley Dams. A searchable database was constructed to assist the Board in the analysis of all of the available data pertaining to Round Valley.

A second meeting of the TRB was conducted in July which was specifically slated to conduct a Potential Failure Mode Analysis on the three Round Valley Embankments (RV South, RV North, and RV Dike).

The final reports pertaining to this July 2015 PFMA / TRB meeting are pending as of the writing of this CIP document; however, the Authority has already begun planning for a large construction project to eliminate many of the concerns raised in the PFMA, which are endorsed by the Authority to ensure the long-term stability and reliability of the structures.

Improvements would be made to all three of the Round Valley embankments. The cost of these improvements will have to be bonded by the Authority, with preliminary cost estimations (with contingencies) in excess of \$60M.

The construction and planning of this project is beyond the scope of this CIP document, and is well documented in the existing draft reports. In an effort to separate the cost of this overall project into categories, Items #12 through #18 represent various costs associated with the continuing engineering work, some of which will have to be funded through the CIP, while all

costs directly associated with construction project engineering management and inspection will be bonded with the construction cost.

#### **Item #19 - Rehabilitate hydraulic valve on RV South Dam low level release**

The existing Round Valley low level release valve was last serviced in 1992 when a hydraulic valve actuator and hydraulic control system were installed at the Round Valley South Tower. This hydraulic system, with hoses reaching down to 180 feet below the water surface to the low water release valve, replaced the out-of-service original control system. The existing hydraulic lines are showing signs of leakage while under operating pressures, and must be replaced if the leak cannot be located.

The replacement of this hydraulic line to the underwater actuator must be done with commercial divers due to the extreme depths. A consulting engineer will be procured to analyze the entire system and determine if any additional repairs are required. They will also make recommendations regarding the selection of a more modern synthetic oil to replace the existing mineral oil, which is not ideal for this application and may have exceeded its useful service life. The existing low-level outlet valve has been verified to be closed by opening other downstream valves in the vault.

#### **Item #20 - Rehab 10-inch cast iron pipe connect RV-S dam vault to Forcemain**

The existing 10-inch cast iron pipe connection from the 108-inch RV Force Main to the RV South Dam Vault was installed as part of the original construction of the Force Main. Authority staff have confirmed that an underground leak exists somewhere in this 10-inch cast iron pipe, through the use of dye testing. This pipe is installed underground with flange connections which are prone to leak in buried applications. The pipe is also subject to internal corrosion. It must be determined if the best course of action will be to line the pipe with a CIP lining material or to replace it by direct burial. Since the pipe is currently dewatered and valved off at the Force Main, there is not a great urgency to complete the project.

#### **Item #21 - Rehabilitation of Carnegie Lake Creek Aqueduct**

The Carnegie Lake Aqueduct comprises a concrete structure that crosses over the Millstone River at Station 1739+00 of the D & R Canal.

Previous inspections indicated that the aqueduct structure is not structurally deficient with the exception of minor cracking and concrete spalling at isolated locations that may not compromise the structure's integrity. A small leak was observed at the northerly wing-wall of the aqueduct near the lake's staff gauge.

It is the intention to follow up on the development of the Canal leak into the lake, and to repair concrete cracking and spalling. It is difficult to determine the overall condition of the aqueduct structure as well as the supporting piles because the river level is often so high that it submerges the majority of the concrete aqueduct (approximately 1 foot below the top of the aqueduct walls during high river flows). Since it is difficult to assess the structure due to the water level, the

Authority is first conducting an analysis of the structure by procuring a diving services contractor to analyze the condition. It is anticipated that repairs will have to be made during the next three (3) years.

### **Item #22 - New 2-dimensional (2-D) Inundation mapping for Round Valley and Spruce Run Reservoir**

In 2014 and 2015 the Authority upgraded all of the inundation mapping (Emergency Action Plan attachments) for all four (4) of the high hazard dams and the Spruce Run and Round Valley Reservoir Complex in Clinton. This mapping upgrade constituted taking the old inundation model hatched area data (one dimensional, 1-D) which was originally drawn onto high scale USGS mapping and transferring it into a GIS overlay of modern NJ State aerial images. The result of this work produced maps which were overwhelmingly more detailed than the previous mapping, and shows the location of residential and commercial structures which may be affected by flooding during a dam breach. As of August 2015 these maps have been copied and the mapping and EAP documents are being prepared for shipment to the County and Municipal OEM offices.

The remaining drawback regarding these maps is that the hatched inundation areas are still dependent upon the 1-D computational data from 1980. The 1-D mapping is based on empirical calculations based on cross-sections taken at large increments along the rivers. It is uncertain how accurate this modeling would be in the event of an actual emergency (currently, OEM's are instructed to evacuate an area larger than is shown on the mapping).

The Authority feels that it is prudent to invest in a new study where computers model the flows based on 2-D topographic squares in the flood zones. The degree of accuracy far surpasses the existing 1-D studies. Modern deliverables will also include animations as well as color coded mapping layers depicting depth of water in any particular area in a time sequenced video. It is also possible in this modern era to better simulate the effect of tidal fluctuations on the inundation area, which was not possible to analyze at the time of the initial models.

The Authority has been researching computer program options and deliverables, and planning the anticipated scope of work for several months to procure a consultant engineering firm to construct this inundation mapping model. This modeling effort is projected for FY 2016, and may stretch into FY 2017, at which time updated EAP inundation maps will be redistributed to municipal and county OEM's.

### **Item #23 - Rehabilitation of the Ten Mile Waste Gate**

The Ten Mile Waste Gate is located just upcanal of the Ten Mile Lock. It is a concrete structure with two sluice gates that are routinely opened and closed to adjust discharge flow from the Canal to the Millstone River near its confluence with the Raritan River. Canal flow in excess of that required by downcanal water purveyors is used to augment flow in the Raritan River. The existing waste gates were installed in 1958 and are in need of replacement. One of the two gates is inoperable and the second gate is difficult to operate.

The Authority is considering the option of constructing a redundant additional stop log or sluice gate system on the downstream side of the culvert to facilitate the replacement of these gates by divers. Replacement of the gates is scheduled for FY 2016.

#### **Item #24 - Dredging of Intake Pond at the South Branch Pumping Station**

The intake pond at the South Branch Pumping Station (SBPS) was designed with a capacity of 21,000,000 gallons during low flow pumping periods. Sediment has accumulated in the pond reducing its capacity and thereby reducing the efficiency of the pumping operation of the SBPS. Sediment was last removed from the pond in 1986 at a cost of \$265,000. Accounting for inflation, the estimated cost to remove the stone and sediment is \$600,000.

In 1986, material was removed from the pond in the dry and was stockpiled in a temporary stockpile site at the station where it is removed and used as needed. With the current flood hazard area restrictions, this stockpile site cannot be used for the proposed project.

#### **Item #25 - Rehabilitation of the Upper Canal Embankment - Raven Rock and Prallsville**

Four major flood events in the Delaware River since September 2004 have overtopped the Canal embankment between the Raven Rock and Prallsville where the Canal and the River become one body of water during floods. The embankment that separates the Canal from the River in that stretch is very narrow and is inaccessible by vehicles, making maintenance a challenge (by boat). Several areas in this stretch have experienced deterioration, typically initiated by fallen trees, which is exacerbated by high water events where, at times, the River and the Canal become one body of water.

Following the storms of 2011, these areas were attended to by Authority forces utilizing emergency measures to prevent furtherance of the ongoing erosion. Since all of the work had to be done by hand, using barges to supply materials, riprap and cement bags were used to close openings in the embankment. These temporary repairs require replacement with more substantial and historically appropriate materials.

The Authority identified eight primary locations in this reach that required investigation, design and repair. In addition to these primary locations, the consultant was charged with inspecting the entire embankment from Raven Rock to Prallsville and identifying any other additional locations that should be considered for repair.

A professional services contract was awarded to a team led by GZA GeoEnvironmental as the engineers for the repairs of the embankment. PS&S was selected as the Cultural Resource consultant for the project.

A Final Schematic Design Report was submitted on July 2, 2014. The GZA team identified and prioritized seventeen additional areas that warrant attention. Conceptual approval has been received from the State Historic Preservation Office and the Delaware and Raritan Canal Commission.

GZA's preliminary conceptual construction cost estimate for the eight primary damaged embankment repairs is approximately \$2.52 million. However, the budget has been increased due the expectation that new repair areas will need to be addressed based on recent inspections. Staff will need to prioritize repairs of the eight originally noted sites and the 17 additional areas. Construction of this project is anticipated to take place over several years due to access, environmental, and wildlife constraints).

### **Item #26 - Rehabilitation of Canal Flow Structures at the Griggstown and Ten Mile Locks**

The Canal was converted into a water supply source in the 1940s and 1950s. This included conversion of the original locks into flow control structures with sluice gates to regulate the flow. There are nine flow control structures located along the length of the Canal that were inspected and evaluated by Schnabel Associates in 2001 to determine the required rehabilitation. The structures include Raven Rock Lock, Prallsville Lock, Lambertville Lock, Kingston Lock, Griggstown Lock, Ten Mile Lock, South Bound Brook Lock, Five Mile Lock and the Ten Mile Waste Gate (up Canal).

In addition to the replacement of many of the flow control gates, there are a variety of repairs needed at each of the sites. The deficiencies range from minor cracking and spalling of the concrete to repair of undermining of the locks.

The Authority plans to phase in gate replacement and structural rehabilitation based on operational priorities. Replacement of the flow control gates and other repairs at the Griggstown and Ten Mile Locks are forecasted for construction in FY 2019.

### **Item #27 – Refurbishment of Main Pumps and Motors No. 5 & 7**

The South Branch Pumping Station (SBPS) was constructed in the 1960's to pump water into Round Valley Reservoir. The main pumps, motors, and associated equipment at the station are infrequently operated (usually one month a year to maintain the pool elevation, as required). Maintenance pumping is done periodically to maintain the equipment.

Approximately 1.9 billion gallons of water were pumped into Round Valley Reservoir during the April – May 2009 pumping program. Lessons learned from the program demonstrated the need to repair the baseplates under the pumps and motors to prevent movement and maintain alignment between the pumps and motors.

The Authority retained Hatch Mott MacDonald (HMM) to prepare an asset management plan for the SBPS and prepare specifications for the refurbishment of the pump units. All ten pumps have similar baseplate and alignment problems, but only two (pump assemblies 1 & 6) of the ten are being refurbished at the present time under the current public contract.

Inspections of the motors also showed the deterioration of the stator winding insulation. Deterioration of the insulation of the stator windings is attributed to the age of the units and the humidity in the building. The extent of the deterioration in each unit is unknown because the entire stator cannot be inspected without full disassembly of the motors at an authorized shop.

Other service requirements to the units can only be ascertained when the units are removed and disassembled.

Refurbishment of the first two pump and motor assemblies was awarded to Longo Electrical-Mechanical, Inc. of Wharton, NJ in 2013 for an amount not to exceed \$1,239,700. Approval was authorized for allowance items specified in the bid documents for an amount not to exceed \$445,200. These allowance items are for parts needed for the pump refurbishment that cannot be determined until the units are undergoing refurbishment. To date only \$33,381.60 for the purchase of two casing rings was authorized from the allowance items.

It is anticipated that units 1 and 6 will be reinstalled and reconnected in fall of 2015. Refurbishment of the next two units, units 5 and 7, is planned for FY 2017 and 2018. Once completed, an analysis of the refurbishment work will be conducted to formulate a “lessons learned” report and modify the scope and technical specifications for future pump and motor refurbishments.

#### **Item #28 - Removal of Sediment from Route 1 Conduit**

The US Route 1 Conduit is a twin-barrel, 13’ x 8’ concrete box culvert constructed in the 1950s. It is approximately 6050 feet long carrying the Canal water under U.S. Route 1 from Southard Street to the north of Mulberry Street, in Trenton, NJ. This section of roadway is locally named the “Trenton Freeway.”

In addition to carrying the Canal water, this conduit serves as the storm drainage outlet for the highway directly above and the 300 +/- acre area immediately west of the conduit in the City of Trenton. As a result of highway storm drains and local storm drainage pipes discharging into the westerly barrel of this enclosed section of the Canal, sediment accumulates in the conduit and interferes with its flow carrying capacity. This is a recurring problem necessitating removal of the sediment. Approximately 6,000 cubic yards of sediment were removed from the west barrel in the 1980’s.

Currently, the flow carrying capacity of the conduit is again being impacted by accumulated sediment. The Authority is working with the NJDOT to develop an approach to removing the sediment that is acceptable to all involved parties.

#### **Item #29 - Replacement of Ice Deflectors at the SBPS**

There are 12 steel wide flange beams set in a grout bed that function as an ice deflector at the release works of the channel of the South Branch Raritan River at the South Branch Pumping Station. The ice deflectors protect the structure and the flow gates from damage from ice and trees floating down the river. They are deteriorating and need to be replaced.

Replacement of the beams is planned for FY 2016 or FY 2017.

#### **Item #30 - Rehabilitation of the Landing Lane Spillway**

The Landing Lane Spillway is located immediately upcanal of the Landing Lane Bridge in the City Of New Brunswick, Middlesex County. This spillway was rehabilitated in 1991 with the construction of a concrete cutoff wall in the Canal to control leakage from the Canal. Timber planks were installed on the concrete wall for historical appearance. The spillway was finished with hand-placed stones across the crest and the river side slope. The stones were laid in a sand bed without the benefit of mortar. The stones are being dislodged and the spillway crest needs to be stabilized. The planned rehabilitation will be to remove all stone from the crest, pour a concrete slab and reset the stones with ties to the concrete slab, similar to recently completed Canal spillways.

### **Item #31 - Repair of Pipe at Whitehead Road**

A sinkhole developed in the towpath 1,600 feet upcanal from Whitehead Road in Lawrence Township. This location is 3,600 feet downcanal of the outlet of the Trenton Conduit. The sinkhole developed over a failed storm drainage pipe that goes under the Canal and US Route 1 and discharges into the Assunpink Creek. The sinkhole caused erosion in the Canal slope and the Canal path. Staff filled the sinkhole with 6-inch riprap and regraded the area.

The pipe was not repaired at this time and will necessitate additional planning and action. The initial step in repairing the pipe is the need to determine who is responsible for the pipe and assess the condition of the entire pipe length.

### **Item #32 - Rehabilitation Work at the Washington Crossing Spillway**

The Delaware River Joint Toll Bridge Commission advised the Authority on June 6, 2013 of clear seepage coming from their historic stone bridge abutment at the Washington's Crossing Bridge. The Authority had been operating the Canal at raised levels in that vicinity to address a flow problem in the Trenton area. The higher than normal levels of the Canal caused the Washington Crossing spillway, which is directly adjacent to the abutment, to operate (overflow).

The concrete spillway structure has two motor operated waste gates that can be operated on site or remotely from the Canal Office. The spillway and associated waste gates were designed to help regulate the amount of water in the Canal and to provide a controlled discharge in periods of high water. The concrete spillway is approximately 152'± long and 37'± wide, consisting of two (2) concrete spillway boxes with twenty (20) 36"x40" vertical elliptical reinforced concrete pipes, and one (1) 68"x75" reinforced concrete pipe. A concrete apron in front of the 68"x 75" concrete pipe handles the flow of water coming through the pipe and the stone apron in front of the rest of the pipes protect the embankment from erosion. Hand placed stonewalls border the aprons.

As a temporary measure, staff opened the waste gate associated with the spillway and was able to draw the Canal level down sufficiently to stop discharge over the spillway. The abutment seepage stopped. At that time, it was unknown if the seepage was a result of the elevated Canal levels causing increased pressure or simply the presence of the water discharging over the spillway through the pipes below and hitting the abutment.

Authority staff placed sandbags on the spillway crest and is controlling the water level in the Canal by operating the waste gates. This temporary stopgap measure is working to eliminate the seepage. Experience from the earlier trials has shown that the seepage returns if the sandbags are removed or washed off and flow discharges from the northern most pipes. Seepage may cause damage to the spillway structure, the bridge tenders house or the bridge abutment as a result of removal of fines by piping or undermining.

Staff is continuing to monitor the situation and to investigate alternatives for controlling the flowing water.

### **Item #33 – Washington Crossing Waste Gate Repair / Replacement**

One of the waste gates at Washington Crossing spillway, which were replaced in 2000, will not seal properly after being opened. The Authority is procuring a diving services contractor to perform an underwater investigation to determine if the problem is mechanical, with the seal, or if the gate is obstructed by sediment buildup around the gates.

### **Item #34 - Security System Upgrade**

A vulnerability assessment of the Authority's facilities was completed in 2003. This project includes continuing implementation of improvements recommended in the vulnerability assessment. Buoys were installed around the tower at the Spruce Run Reservoir in 2015.

Other protective measures are also being considered as recommended in the vulnerability assessment.

### **Item #35 – Alexauken Creek Aqueduct**

Paralleling the western side of the Alexauken Creek Aqueduct is the former Belvidere-Delaware Railroad concrete bridge, which passes over the creek immediately adjacent to the 1940's concrete aqueduct trunk.

The Aqueduct's northeast, center and southeast 1834's historic stone abutments were rehabilitated in 1989-1990. Recent inspections revealed that all the abutments have missing mortar on the lower areas, which are continuously exposed to the water line action. In addition, the northeast abutment shows vegetation covering the structure on the creek's face.

It is noted that a new Canal leak was detected below the northeast abutment's masonry. A further investigation on May 10, 2007 revealed that water is percolating between the joint of the concrete aqueduct northeast flap wall and the stone masonry abutment. This erosive process will lead to a progressive failure of the stone masonry structure as it has been observed for the southwest Canal embankment. The aqueduct's embankments are in fair condition with the exception made of the southwest Canal embankment, which is leaking water from the Canal into the creek.



It is recommended to set up a corrective action on the new detected leak at the north east end of the aqueduct.

**Item #36 - Roofing Replacement at the North & South Towers**

The built-up roofing at the North and South Towers at Round Valley Reservoir are approaching 30 years old, they were replaced in 1984. There are also some masonry crack repairs required in the brick work around the sides of the towers, which should be added to the scope of work for this project, as there is no safe way for Authority personnel to conduct these repairs.

**Item #37 - Replacement of the through the wall HVAC units at the Administration Building**

The 26 through the wall HVAC units at the Administration Building are reaching the end of their useful life. They were installed in 1994. Replacement parts are becoming difficult to get and the units are constantly in need of service. Replacement of the units is planned for FY 2017.

**Item #38 - Rehabilitation of Culvert at Station 2550+90 (1 mile upstream of 10-mile)**

The unnamed culvert at Station 2550+90 is located in Franklin Township, Somerset County approximately one mile east of Weston Causeway and ¼ mile east of School House Road. Boswell Underwater Engineering inspected the culvert in September 2007. The inspection identified numerous areas exhibiting missing mortar pointing and stone along both the walls and crown of the structure. Missing stone were also identified on both the upstream and downstream headwalls. They classified the culvert as being in fair condition and recommended repairs be made to the culvert barrel as well as both headwalls.

**Item #39 - Rehabilitation of the Traprock Quarry Spillway**

The Traprock Quarry Spillway between Station 1925+90 and Station 1929+20 of the Canal in Franklin Township, Somerset County located approximately ¾ mile upcanal from Route 518 is in poor condition and warrants rehabilitation. The 330-foot long spillway was built as part of the original Canal construction in the 1830's and is part of the Canal's flood control system into the Millstone River. Engineering services are required in order to inspect the structure, prepare a schematic design, prepare a design of the approved rehabilitation alternative and provide construction management services during the rehabilitation of the structure. A cultural resource consultant is also required to perform a cultural resource investigation for the rehabilitation of the spillway and to provide observation during rehabilitation. Rehabilitation of the Traprock Spillway will be scheduled after the dredging program between the Kingston and Amwell Road is complete so the reconstructed spillway does not get damaged by the heavy equipment used to haul the sediment from the site.

**Item #40 - Dredging of the Canal between Landing Lane and Route 18**

Approximately 70 percent of water diverted from the Canal is taken by purveyors at the Canal terminus near Route 18 in New Brunswick, Middlesex County. Sediment bars have formed just

upstream of the two primary intakes from the Canal wherein the normal Canal operating level is only 18 inches above the sediment level. A decrease in the Canal operating level by more than 12 inches makes it difficult for the water purveyors to divert water. Removal of this accumulation is essential to ensure delivery to these water purveyors.

Removal of the accumulation must be carefully coordinated with the water purveyors in this reach. Development of a program will be modeled after the dredging program currently being developed for the Canal reach between Kinston and Amwell Road.

#### **Item #41 - Dredging between Lambertville Lock and Trenton**

Sediment was removed from this reach in the mid-1980's. Breach of the embankment at the Workhouse Spillway in 2011, drained the Canal between the Lambertville Lock and the Kingston Lock exposing sediment that has accumulated since the 1980's. While the Canal was drained, Authority staff removed sediment mounds that were the most pronounced but was unable to remove all of the mounds. Long term planning needs to focus on the removal of sediment from this reach.

#### **Item #42 - Dredging between Amwell Road and Ten Mile Lock**

Currently plans are being developed to dredge a 10.5 mile stretch of the Canal between Kingston and Amwell Road. Flow in the stretch of the Canal between Amwell Road and Ten Mile Lock is also being impeded by the accumulation of sediment. Long term planning needs to focus on the removal of sediment from this reach.

#### **Item #43 - Construction of a Bedload Stone Trap at the Wickecheoke Creek**

Wickecheoke Creek enters the Canal just upstream of the Prallsville Lock Control Structure in Delaware Township, Hunterdon County. Excess flow from the Canal and the Creek are discharged over the Wickecheoke Creek spillway into the Delaware River. Investigations in the early 1990's recommended the construction of a bedload stone trap in the creek upstream of its confluence with the Canal to improve the ability to remove the bedload without disrupting the flow in the Canal.

The Authority desires to pursue construction of the structure because of the escalating need to remove bedload from the Canal at this location and the difficulty of removing the material from the Canal at this location. However, this project is currently on hold and has been moved to low priority.

#### **Item #44 - Cutoff Wall in the Shipetaukin Creek Guard Bank**

The Shipetaukin Creek Guard Bank, located in Lawrence Township, Mercer County, was constructed along the western side of the Canal to separate the Canal from the Lawrence Meadows and Shipetaukin Creek. The Guard Bank breached during Hurricane Floyd in September 1999 because of high water levels in the Lawrence Meadows. Typically the water level in the Lawrence Meadows, between Provinceline Road and the Route 295 Interchange is

higher than the water levels in the Delaware and Raritan Canal so the breach did not cause a loss of Canal water supply.

Leakage is visible through the guard bank from the Lawrence Meadows towards the Canal. Currently, the seepage is clear; however, the seepage is getting progressively worse and a program is necessary to control the leakage and prevent piping and a potential failure of the embankment. This section of towpath is approximately 7,000 feet long but most of the leakage occurs in a 3,200-foot long section between Station 1477+00 and Station 1509+00. Depth of the cutoff wall will range between 8 and 18.5 feet.

It is planned that a cutoff wall will be constructed in this reach of the embankment. The cutoff wall will be either slurry concrete mix or a clay mix. The slurry concrete mix has the advantage for ease of installation but may cause permit problems.

It will be necessary to retain a consultant to obtain boring information through the guard bank to determine the recommended depth of the cutoff wall. Funding for this project is not included in this five year program.

#### **Item #45 - Wickecheoke Creek Gates Abandonment**

Authority staff has been instructed to not operate these waste gates because they have been extensively damaged by wood debris which accumulates at this area during flooding. The gates will need to be abandoned in the future. Funding for this project is not included in this five year program.

#### **Item #46 - Rehabilitation of the Waste Gate downstream of Ten Mile Lock**

The waste gate is located at Canal Station 2599+50, approximately 600 feet downstream of the Ten Mile Lock in Franklin Township, Somerset County. The existing non-operational waste gate consists of a wooden gate structure set between guides attached to the recessed portion of a concrete inlet headwall. A 60-inch diameter concrete pipe links the gate and inlet headwall to the outlet headwall. The outlet headwall and wingwalls are constructed of stone masonry.

The outlet pipe was permanently sealed with concrete in 2014. Woodwork is planned for the waste gate façade. Funding for this project is not included in this five year program.

#### **Item #47 - Rebuild Stone Embankment at the 10 Mile Waste Gate**

This project encompasses reconstruction of the deteriorated stonework on the downstream side of the structure. Funding for this project is not included in this five year program.

#### **Item #48 - Rehabilitation of the Gold Run Spillway**

The Gold Run Spillway is located at Station 955+00 approximately 500 feet upstream of Lower Ferry Road in Ewing Township, Mercer County. The Gold Run Spillway is a concrete structure built in 1913. The concrete spillway box is approximately  $\pm$  98 feet long and  $\pm$  4 feet wide. The elevation of the spillway crest is 56.70 ft.

Fourteen (14) – 36-inch diameter concrete pipes handle the flow of water coming through the spillway. The pipes discharge on a downstream concrete apron that protects the embankment from erosion. The spillway box is leaking and needs to be replaced. Funding for this project is not included in this five year program.

#### **Item #49 - Rehabilitation of the Six Mile Run Culvert Headwall**

The Six Mile Run Culvert was rehabilitated in the mid-1980s. Stone-faced concrete headwalls were constructed at the inlet and outlet ends of the culverts and minor stone repair was performed in the culvert barrels. A portion of the stone facing of the downstream headwall has dislodged from the concrete headwall during the winter of 2005 - 2006. The stone armoring above the downstream headwall needs to be restored.

Funding for this project is not included in this five year program.

#### **Item #50 - Carnegie Lake Culverts Investigation / Isolation**

There are two (2) submerged culverts located adjacent to Carnegie Lake which the Authority must locate and investigate. Funding for this project is not included in this five year program.

#### **Item #51 - Raven Rock retaining wall downcanal of Lock**

The control structure at Raven Rock Lock is located at the canal station 0+00 at Bulls Island State Park in Delaware Township, Hunterdon County. The concrete lock structure consists of four metal sluice gates and operators. Adjacent and downcanal from the locks there is a stone wall. Several stones are missing from the wall. Funding for this project is not included in this five year program.

#### **Item #52 – Refurbishment of Main Pumps and Motors No. 4 & 8 & Item #53 – Refurbishment of Main Pumps and Motors No. 3 & 9 & Item #54 – Refurbishment of Main Pumps and Motors No. 2 & 10**

See description above for Refurbishment of Main Pumps and Motors No. 5 & 7. The remaining six pumps would be refurbished in the order stated above. Funding for this project is not included in this five year program.

#### **Item #55 - Canal Culvert Rehabilitation 2249+79 (Suydam)**

The Culvert near Suydam Road is a single barrel drop style culvert located at Station 2249+79 of the D & R Canal. During the April 2006 inspection the condition appeared very much the same as its condition in October 2003 when it was dewatered and surveyed. On the inlet side, there

are a few stones missing at the base of the inlet structure and there is some shifting of some of the capstones.

On the outlet side, the entire dry-laid headwall has the appearance that it is bowed inward. Additional inspection is required to determine the priority of repairs. Funding for this project is not included in this five year program.

#### **Item #56 - Canal Culvert Rehabilitation 2661+86 (Randolph Brook)**

The Randolph Brook culvert structure consists of three distinct sections. Looking downstream from the inlet, the culvert has a semicircular corrugated steel section, 63 feet long, 13 feet wide and 8 feet high, which runs beneath Weston Canal Road. The pipe abuts a 6 feet long transition box or access chamber, where the alignment of the structure shifts slightly to the left. A double barrel stone arched structure carries the brook under the D & R Canal into the Raritan River. The barrels measures approximately 139.5 feet long, 5 feet wide and 4.5 feet high.

The culvert was rehabilitated in 1990. The rehabilitation entailed the installation of a sleeve of steel liner plates within the arches of the main culvert barrels. Support for the liner plates was provided by newly poured concrete walls. The outlet headwall and timber apron were restored preserving their historic appearance. Additional inspection is required to determine the priority of repairs. Funding for this project is not included in this five year program.

#### **Item #57 - Canal Culvert Rehabilitation 2992+34 (Mile Run Culvert)**

The Mile Run culvert consists of two semi-circular barrels approximately 129 feet long, which appear to be founded on natural rock. The culverts convey Mile Run Creek under the Canal and discharge into the Raritan River in the City of New Brunswick. The barrels are approximately 12 feet wide and 6 feet high. The culvert barrels were constructed of stone masonry and at some time, a brick liner was installed in the east barrel and a “shotcrete” coating was installed in the west barrel.

The culvert was rehabilitated in 1994. The rehabilitation comprised the restoration of headwalls and deteriorated barrels. A structural steel liner was installed in the east barrel, set back 15 feet from the upstream end and 25 feet from downstream end. The shotcrete liner in the west barrel was patched as needed.

A previous inspection revealed that the east barrel’s first 25-foot brick liner section has minor spalls and the remaining metal liner section looks in good condition. On the west barrel it was observed that the gunite layer has spalled away at several locations at the mid length of the barrel, above the footing.

Additional inspection is required to determine the priority of repairs. Funding for this project is not included in this five year program.

#### **Item #58 - Concrete Repairs at the Sullivan Way Aqueduct**

The Sullivan Way Aqueduct is located in Trenton, Mercer County. The structure was constructed in the early 1900s and has been waterproofed and patched several times. The superstructure is a concrete encased steel structure constructed to carry the Canal over Sullivan Way. The concrete on the abutments is spalling and needs attention. Funding for this project is not included in this five year program.

#### **Item #59 - Rehabilitation of the Spillway upstream of the Griggstown Lock**

The spillway upstream of the Griggstown Lock between Station 2060+40 and Station 2064+20 of the Canal in Franklin Township, Somerset County is in poor condition and warrants rehabilitation. The 380-foot long spillway was built as part of the original Canal construction in the 1830's and is part of the Canal's flood control system into the Millstone River. Engineering services are required in order to inspect the structure, prepare a schematic design, prepare a design of the approved rehabilitation alternative and provide construction management services during the rehabilitation of the structure. A cultural resource consultant is also required to perform a cultural resource investigation for the rehabilitation of the spillway and to provide observation during rehabilitation.

Rehabilitation of the spillway will be scheduled after the dredging program between the Kingston and Amwell Road is complete so the reconstructed spillway does not get damaged by the heavy equipment used to haul the sediment from the site. Funding for this project is not included in this five year program.

#### **Item #60 - Rehabilitation of the Four Mile Spillway**

The Four Mile Spillway is located in the Five Mile Lock to the Route 18 section of the Canal in Franklin Township, Somerset County opposite the Rutgers Preparatory School on Easton Avenue. This 600-foot spillway was rehabilitated in 1999 with the installation of a tremie concrete cutoff wall to eliminate leakage from the Canal. The spillway was finished with hand placed stones across the crest, the river side slope and the Canal side slope of the rehabilitated structure. The stones were laid in a mortar bed with a recess in the pointing finish.

Recent flooding events washed the cement from the mortar leaving the stones sitting in a loose sand bed. The stones have the potential to become dislodged and the spillway crest needs to be stabilized. The planned rehabilitation will be to remove all stone from the crest, pour a concrete slab and rest the stones with ties to the concrete slab similar to the recently completed rehabilitation of the Colonial Park Spillway. Recent inspections, however, show the spillway to appear stable, with grass growing between the stones. Funding for this project is not included in this five year program.

#### **Item #61 - Pipeline Evaluation – Whitehouse Release Pipeline**

The Round Valley Release Pipeline (RVRP) conveys water from the Round Valley North Vault to the Whitehouse Release. The pipeline was also intended to convey water pumped from the planned Confluence Pumping Station back to the Reservoir. One pipe section of the 108-inch diameter prestressed concrete cylinder pipe ruptured in 1988 and numerous other sections were

found to have broken prestressing wire that may lead to additional ruptures of the pipe sections. The RVRP was converted into a gravity release pipeline in 1996 with the installation of pressure reducing valves in the North Vault. The reduced pressure design assumes that all the prestressing wire has failed and relies on the strength of the embedded steel cylinder. It was recommended that the pipeline continue to be monitored on a regular basis. The manufacturing and installation dates of the specific pipe sections used in this release line fall within the range of dates where there were faulty materials being manufactured in the industry, which have resulted in failures of similarly dated pipelines.

Funding for this project is not included in this five year program; however, the Authority continues to execute scheduled internal inspection of the release piping. Staff will continue its periodic inspection of the pipeline and take action accordingly.

### **Item #62 – Pipeline Evaluation - RV Force Main**

The Round Valley Force Main is a 3.5-mile long 108-inch diameter prestressed concrete cylinder pipe (PCCP) that conveys water from the South Branch Pumping Station to the South Dam Tower at Round Valley Reservoir. The Force Main is also able to be used for releases from the reservoir to the South Branch Raritan River.

Non-destructive testing of the Force Main was conducted in 1999. The non-destructive testing identified that the majority of the pipe sections were in very good condition. Approximately 5% of the 1,062 pipe sections exhibited anomalous readings that give rise to varying degrees of concern. One section of pipe, pipe section 42, located within the South Branch Pumping Station property, was excavated and further examined externally and internally. The examinations confirmed the results of the non-destructive testing. Instead of instituting a program to immediately replace pipe section 42 and other sections of pipe that were of concern, the Authority embarked on a program to develop a management plan to estimate the anticipated longevity of various pipe sections and prioritize pipe replacement.

Pipe section 42 was replaced in 2005 and was dismantled and tested in January 2006. Pipe section 42 was “designed” to have a double wrap of pre-stressing wire. The outer level of pre-stressing was missing and the pipe section was considered to be “severely structurally compromised.” A large portion of the prestressing wire had significantly lower than the specified stress as determined by the strain gauge testing.

Additionally, the management plan developed in 2003 identified 4 other sections that warrant increased monitoring, pipe sections 33, 43, 48 and 617. The consultants recommended additional non-destructive testing of the entire length of the Force Main with particular emphasis on the noted sections. Continued monitoring of the Force Main is warranted before any additional pipe sections are excavated or replaced.

Funding for this project is not included in this five year program; however, the Authority continues to execute scheduled internal inspection of the force main piping. Staff will continue its periodic inspection of the pipeline and take action accordingly.

**PART III – PROPOSED RULE AMENDMENT**

NEW JERSEY WATER SUPPLY AUTHORITY

**Amendments To The Schedule Of Rates, Charges And  
Debt Service Assessments For The Sale Of Water From  
The Raritan Basin System**

**To Become Effective July 1, 2016**

The following rules and regulations can be found in the New Jersey Administrative Code under N.J.A.C. 7:11-2.1, et. seq.

7:11-2.3 General Rate Schedule for Operations and Maintenance

(a) The General Rate Schedule for Operations and Maintenance per million gallons listed at (b) below is based on estimated annual operations and maintenance expense consisting of all current costs, obligations and expenses of, or arising in connection with, the operation, maintenance and administration of the System, and minor additions or improvements thereof or thereto, or the performance of any water purchase contract, including, but not limited to, all of the following:

1 –7 (No change.)

8. Any other current costs, expenses or obligations required to be paid by the Authority under the provision of any agreement or instrument relating to bonds, other indebtedness of the Authority or by law. The current sales base of 182.339 million gallons per day has been used in setting the rate listed in (b) below.

(b) General rate schedule for operations and maintenance:

<u>Period</u> (State Fiscal year or otherwise indicated)	<u>Allocation</u>	<u>Rate/Million Gallons</u>
State fiscal year [2016] <b>2017</b>	Million Gallons per Day (MGD)	\$171.00

7:11-2.4 Debt Service Assessments

(a) (No change.)



- (b) The following Debt Service Assessment rate for the New Jersey Environmental Infrastructure Financing Program loans, based on a sales base of 182.339 million gallons per day will be applied to all customers.

<u>Period</u> (State Fiscal year or otherwise indicated)	<u>Allocation</u>	<u>Rate/Million Gallons</u>
State fiscal year [2016] <b>2017</b>	Million Gallons per Day (MGD)	\$25.00

7:11-2.5 Capital Fund Component

(a)-(b) (No change.)

(c) Capital Fund Assessment

<u>Period</u> (State Fiscal Year or otherwise indicated)	<u>Allocation</u>	<u>Rate/Million Gallons</u>
State Fiscal Year [2016] <b>2017</b>	Million Gallons per Day (MGD)	\$33.00

7:11-2.6 Source Water Protection Fund Component

(a) (No change.)

(b) Source Water Protection Fund Assessment

<u>Period</u> (State Fiscal Year or otherwise indicated)	<u>Allocation</u>	<u>Rate/Million Gallons</u>
State Fiscal Year [2016] <b>2017</b>	Million Gallons per Day (MGD)	\$24.00

## **APPENDICES**

### **I. Report of CLA PC – Allocation of Headquarters General and Administrative Expenses – FY2017**

**NEW JERSEY WATER SUPPLY AUTHORITY**  
(A Component Unit of the State of New Jersey)

**FORECASTED COST ALLOCATION SCHEDULES**

**YEAR ENDED JUNE 30, 2017**

**NEW JERSEY WATER SUPPLY AUTHORITY**  
(A Component Unit of the State of New Jersey)

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June 30, 2015

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## INDEPENDENT ACCOUNTANTS' REPORT

Commissioners  
New Jersey Water Supply Authority

At your request, we have performed certain agreed-upon procedures, as enumerated below, with respect to the accompanying forecasted cost allocation schedules of the New Jersey Water Supply Authority (the "Authority"), a component unit of the State of New Jersey for the fiscal year ending June 30, 2017. These procedures, which were agreed to by the Commissioners and Authority management, were performed solely to assist you in evaluating the forecasted cost allocation schedules in connection with the setting of water rates for each of the three operating systems (Raritan, Manasquan Reservoir and Manasquan Treatment Plant/Transmission). The Authority's management is responsible for the schedules. This agreed-upon procedures engagement was performed in accordance with attestation standards established by the American Institute of Certified Public Accountants. The sufficiency of these procedures is solely the responsibility of the Authority's management. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose. The procedures that we performed are as follows:

1. We were provided with the fiscal year 2017 budgeted expenses for each of the three operating systems by the Authority's director of finance and administration, who advised us that the fiscal year 2017 budgeted expenses are based upon preliminary budgets that are subject to approval by the Authority's Commissioners. We performed no procedures in regard to these fiscal year 2017 budgeted expenses.
2. We recalculated the allocated costs on the schedules. We found no exceptions as a result of these procedures.
3. We compared the methodologies used for cost allocation on the forecasted schedules to the methodologies used in the Authority's cost allocation schedules for the year ended June 30, 2015 and found them to be consistent.

We were not engaged to and did not conduct an examination, the objective of which would be the expression of an opinion on the accompanying forecasted cost allocation schedules. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you. Furthermore, there will usually be differences between the forecasted and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. We have no responsibility to update this report for events and circumstances occurring after the date of this report.

Commissioners  
New Jersey Water Supply Authority

This report is intended solely for the information and use of the Commissioners and management of the Authority and should not be used by those who have not agreed to the procedures and taken responsibility for the sufficiency of the procedures for their purposes.

*CliftonLarsonAllen LLP*

**CliftonLarsonAllen LLP**

Plymouth Meeting, Pennsylvania  
December 7, 2015

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**SCHEDULE OF FORECASTED COST CENTER EXPENSE RECLASSIFICATION**  
**YEAR ENDED JUNE 30, 2017**  
**(See Independent Accountants' Report)**

DEPT. #	DEPT./COST CENTER	COST CENTER COSTS	RECLASSIFICATIONS									REVISED COST CENTER COSTS
			1 HEATING/ ELECTRIC	2 VEHICULAR FUEL	3 PROFESSIONAL FEES	4 INSURANCE	5 TELEPHONE	6 PERMITS	7 WORKERS' COMP.	8 IN LIEU TAXES	9 CHIEF ENGINEER SALARY & FRINGE	
	BUILDING HQ	\$ -	\$130,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$130,100
	TELEPHONE HQ					75,000						75,000
36	SAFETY	214,500			(5,000)							209,500
37	SECURITY	955,150										955,150
14	HUMAN RESOURCES	433,000			(4,100)				(10,000)			418,900
16	PURCHASING	571,750		(134,075)			(75,000)	(16,000)				346,675
17	INFORMATION SYSTEMS	155,900										155,900
15	CONTRACTS & RISK MGMT.	1,787,800			(29,000)	(1,300,000)		(96,100)		(18,700)		344,000
13	FINANCIAL MGMT.	1,021,324			(2,730)							1,018,594
34	AUTO SHOP	229,000		134,075				16,000				379,075
35	AUTO SHOP-CANAL	217,900										217,900
10	EXEC OFFICE	251,600	4,757									256,357
20 30 31 32 33	WATERSHED, ENGINEERING & O&M (RARITAN SYSTEM)	7,848,200	(134,857)		40,830	1,300,000		96,100	10,000	18,700	(18,041)	9,160,932
		13,686,124	0	0	0	0	0	0	0	0	(18,041)	13,668,083
40-60	MANASQUAN SYSTEM	5,478,478									18,041	5,496,519
		<u>\$19,164,602</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$19,164,602</u>

See accompanying notes to Financial Schedules.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**SCHEDULE OF FORECASTED SYSTEM-WIDE ALLOCATION COSTS**  
**YEAR ENDED JUNE 30, 2017**  
**(See Independent Accountants' Report)**

ALLOCATION BASIS															
DEPT. #	DEPT./COST CENTER	REVISED COST CENTER COSTS	SQ. FT. #	# OF TELEPHONES	# OF EMPLOYEES	100 % RARITAN O&M	# OF EMPLOYEES	# OF P.O.s	# OF COMPUTERS	MGD CONTRACTS	O&M BUDGET	# OF VEHICLES	# OF VEHICLES	TIME ESTIMATE	ALLOCATED COST CENTER COSTS
	BUILDING HQ	\$130,100	<u>(\$130,100)</u>												
	TELEPHONE HQ	\$75,000	0	<u>(\$75,000)</u>											
36	SAFETY	\$209,500	976	824	<u>(\$211,300)</u>										
37	SECURITY	\$955,150	4,998	3,297	16,979	<u>(\$980,424)</u>									
14	HUMAN RESOURCES	\$418,900	6,018	3,297	5,660	0	<u>(\$433,875)</u>								
16	PURCHASING	\$346,675	6,640	2,473	3,773	0	8,678	<u>(\$368,239)</u>							
17	INFORMATION SYSTEMS	\$155,900	1,385	824	1,887	0	4,339	10,361	<u>(\$174,696)</u>						
15	CONTRACTS & RISK MGMT.	\$344,000	4,323	1,648	3,773	0	8,678	5,842	5,635	<u>(\$373,899)</u>					
13	FINANCIAL MGMT.	\$1,018,594	12,596	5,769	13,206	0	30,371	9,809	25,359	0	<u>(\$1,115,704)</u>				
34	AUTO SHOP	\$379,075	20,514	1,648	1,887	0	4,339	17,194	8,453	0	27,267	<u>(\$460,377)</u>			
35	AUTO SHOP-CANAL	\$217,900	0	1,648	1,887	0	4,339	12,896	5,635	0	15,674	0	<u>(\$259,979)</u>		
10	EXEC OFFICE	\$256,357	17,456	5,769	1,887	0	4,339	2,425	5,635	0	18,440	0	0	<u>(\$312,308)</u>	
20 30 31 32 33	WATERSHED, ENGINEERING & O&M (RARITAN SYSTEM)	\$9,160,932	55,194	47,803	111,309	980,424	255,984	160,697	92,985	337,861	658,954	460,377	259,979	280,296	\$12,862,795
40-60	MANASQUAN SYSTEM	\$5,496,519	0	0	49,052	0	112,808	149,015	30,994	36,038	395,369	0	0	32,012	6,301,807
		<u>\$19,164,602</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$19,164,602</u>

See accompanying notes to Financial Schedules.



**NEW JERSEY WATER SUPPLY AUTHORITY**  
**SCHEDULE OF FORECASTED COST ALLOCATION FACTORS**  
**YEAR ENDED JUNE 30, 2017**  
**(See Independent Accountants' Report)**

		REQUIRED STATISTICS										
ALLOCATION OF:		BUILDING HQ	TELEPHONES	SAFETY	HUMAN RESOURCES	PURCHASING	INFORMATION SYSTEMS	CONTRACTS & RISK MGMT	FINANCE O&M	AUTO SHOP	AUTO SHOP CANAL	EXEC. OFF
ALLOCATION BASIS:		SQ. FT. #	# OF TELEPHONES	# OF EMPLOYEES	# OF EMPLOYEES	# OF P.O.'S	# OF COMPUTERS	MGD CONTRACTS	FUNCTIONAL COST	# OF VEHICLES	# OF VEHICLES	TIME ESTIMATE
DEPT. #	DEPT./COST CENTER											
	BUILDING HQ											
	TELEPHONE HQ											
36	SAFETY	110	1									
37	SECURITY	563	4	9								
14	HUMAN RESOURCES	678	4	3								
16	PURCHASING	748	3	2	2							
17	INFORMATION SYSTEMS	156	1	1	1	94						
15	CONTRACTS & RISK MGMT.	487	2	2	2	53	2					
13	FINANCIAL MGMT.	1,419	7	7	7	89	9	0				
34	AUTO SHOP	2,311	2	1	1	156	3	0	\$379,075			
35	AUTO SHOP-CANAL	0	2	1	1	117	2	0	217,900			
10	EXEC OFFICE	1,967	7	1	1	22	2	0	256,357	0		
20 30 31 32 33	WATERSHED, ENGINEERING & O&M (RARITAN SYSTEM)	6,218	58	59	59	1,458	33	182	9,160,932	40	40	89.75
40-60	MANASQUAN SYSTEM			26	26	1,352	11	19	5,496,519			10.25
		14,657	91	112	100	3,341	62	202	\$15,510,783	40	40	100 %

See accompanying notes to Financial Schedules.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**SCHEDULE OF FORECASTED MANASQUAN SYSTEM ALLOCATION COSTS**  
**YEAR ENDED JUNE 30, 2017**  
(See Independent Accountants' Report)

COSTS	ALLOCATION BASIS					ALLOCATED COSTS	
	1 TIME STUDY	2 \$ VALUE OF VEHICLES	3 \$ VALUE OF EQUIPMENT	4 TIME STUDY	5 VALUE OF WATER CONTRACTS		
<u>GENERAL &amp; ADMINISTRATIVE</u>							
SALARIES & FRINGES	\$3,158,911	<u>(\$3,158,911)</u>					
VEHICLE RELATED	73,150	<u>(\$73,150)</u>					
MAINT. SUPPLIES & RELATED	64,600		<u>(\$64,600)</u>				
OFFICE & MISC.	51,500			<u>(\$51,500)</u>			
H.Q. OVERHEAD	823,329				<u>(\$823,329)</u>		
RESERVOIR (40)	1,070,768	1,556,900	48,784	28,385	25,382	709,165	\$3,439,384
TREAT./TRANS. (50)	1,059,546	1,602,011	24,366	36,215	26,118	114,164	2,862,420
	<u>\$6,301,804</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>(\$0)</u>	<u>\$6,301,804</u>

See accompanying notes to Financial Schedules.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**NOTES TO FINANCIAL SCHEDULES**  
**JUNE 30, 2017**  
**(See Independent Accountants' Report)**

**NOTE 1    GENERAL**

The New Jersey Water Supply Authority as part of its annual budget and rate making process performs a two-step cost allocation calculation. During the first step, the Authority forecasts its actual expenses by Cost Center. For purposes of this calculation the Authority uses the following Cost Centers:

Raritan System

- Building Headquarters
- Telephone Headquarters
- Safety
- Security
- Human Resources
- Purchasing
- Information Systems
- Contracts & Risk Management
- Financial Management
- Auto Shop
- Auto Shop - Canal
- Executive Office
- Engineering, Watershed Management, Operations and Maintenance (Raritan System)

Manasquan System

In deriving expenses by Cost Center several expense reclassifications are made on the Schedule of Forecasted Cost Center Expense Reclassification as follows:

1. Heating and electricity expenses related to Building Headquarters ("HQ") and Executive Office are reclassified from Engineering and Operations & Maintenance ("O & M").
2. Vehicular fuel expense related to Auto Shop is reclassified from Purchasing.
3. Professional fees related to O & M are reclassified from the various departments to which they have been charged.
4. Insurance premium expense related to the Raritan System is reclassified from Contracts and Risk Management.
5. Telephone expense is reclassified from Purchasing to a separate Telephone HQ Cost Center.
6. Permit expense related to the Raritan System is reclassified from Contracts and Risk Management and Purchasing.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**NOTES TO FINANCIAL SCHEDULES**  
**JUNE 30, 2017**  
**(See Independent Accountants' Report)**

**NOTE 1    GENERAL (CONTINUED)**

7.    Workers' compensation expense related to the Raritan System is reclassified from Contracts and Risk Management.
8.    In-lieu taxes related to the Raritan System are reclassified from Contracts and Risk Management.
9.    Chief Engineer Salary & Fringe Expenses related to the Manasquan System are reclassified from the Engineering Department.

The second step entails a step-down allocation of eleven of the Authority's Cost Centers to the Raritan and Manasquan System Cost Centers. In making this step-down allocation the Authority allocates cost as follows:

1.    Building HQ is allocated to each of the Cost Centers based on the amount of space utilized.
2.    Telephone HQ is allocated to each of the Cost Centers based on the number of telephones utilized.
3.    Safety is allocated to each of the Cost Centers based on the number of employees.
4.    Security is allocated entirely to the Raritan System.
5.    Human Resources is allocated to each of the Cost Centers based on the number of employees.
6.    Purchasing is allocated to each of the respective Cost Centers based on the number of purchase orders issued.
7.    Information Systems is allocated to each of the Cost Centers based on the number of computers.
8.    Contracts and Risk Management is allocated to each of the Cost Centers based on the number of employees.
9.    Financial Management is allocated based on a percentage of the four remaining Cost Centers' budgets.
10.    Auto Shop and Auto Shop-Canal are allocated based on the number of vehicles used.
11.    Executive Office is allocated based on the amount of executive time utilized in managing each of the Systems.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**NOTES TO FINANCIAL SCHEDULES**  
**JUNE 30, 2017**  
**(See Independent Accountants' Report)**

**NOTE 2    MANASQUAN SYSTEM ALLOCATED COST**

The Manasquan Water Supply System's direct and allocated costs are then allocated between the Reservoir System and the Water Treatment Plant/Transmission System. In making this allocation the Authority adds to each System's direct expenses, the indirect costs allocated as follows:

1. Salaries and Fringe Benefits are allocated based on actual time studies performed by each employee throughout Fiscal Year 2015.
2. Vehicle related expenses are allocated based on the dollar value of vehicles held by each System.
3. Maintenance Supplies and related expenses are allocated based on the dollar value of capital equipment held by each System.
4. Office and miscellaneous expenses are allocated based on the time studies performed by each employee throughout Fiscal Year 2015.
5. Headquarters Overhead expenses are allocated based on the value of water contracts for each System.

**II. Report of CLA PC – Allocation of Headquarters General and Administrative Expenses – Audited FY2015 Expenditures**

**NEW JERSEY WATER SUPPLY AUTHORITY  
(A Component Unit of the State of New Jersey)**

**COST ALLOCATION SCHEDULES**

**YEAR ENDED JUNE 30, 2015**

**NEW JERSEY WATER SUPPLY AUTHORITY  
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CliftonLarsonAllen LLP  
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## INDEPENDENT ACCOUNTANTS' REPORT

Commissioners  
New Jersey Water Supply Authority

We have examined management's assertion that the accompanying financial schedules of New Jersey Water Supply Authority (the "Authority"), a component unit of the State of New Jersey, for the year ended June 30, 2015, listed in the foregoing table of contents are presented in accordance with the cost allocation criteria set forth in Notes 1 and 2. The Authority's management is responsible for the assertion. Our responsibility is to express an opinion based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants and, accordingly, included examining, on a test basis, evidence supporting the financial schedules and performing such procedures as we considered necessary under the circumstances. We believe that our examination provides a reasonable basis for our opinion.

In our opinion, the financial schedules referred to above present, in all material respects, the Authority's allocation of costs to the Raritan and Manasquan Systems based on the cost allocation criteria set forth in Notes 1 and 2.

This report is intended for the information and use of the Commissioners and management of the Authority and is not intended to be and should not be used by anyone other than these specified parties.

*CliftonLarsonAllen LLP*

**CliftonLarsonAllen LLP**

Plymouth Meeting, Pennsylvania  
December 7, 2015

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**SCHEDULE OF COST CENTER EXPENSE RECLASSIFICATION**  
**YEAR ENDED JUNE 30, 2015**  
**(See Independent Accountants' Report)**

DEPT. #	DEPT./COST CENTER	COST CENTER COSTS	RECLASSIFICATIONS									REVISED COST CENTER COSTS			
			1 HEATING/ ELECTRIC	2 VEHICULAR FUEL	3 PROFESSIONAL FEES	4 INSURANCE	5 TELEPHONE	6 PERMITS	7 WORKERS' COMP.	8 IN LIEU TAXES	9 CHIEF ENGINEER SALARY & FRINGE				
	BUILDING HQ		\$69,507										69,507		
	TELEPHONE HQ							\$83,797					83,797		
36	SAFETY	180,947											180,947		
37	SECURITY	862,198											862,198		
14	HUMAN RESOURCES	390,286			(\$2,754)					(\$5,707)			381,825		
16	PURCHASING	521,756		(\$143,557)				(83,797)		(\$16,587)			277,816		
17	INFORMATION SYSTEMS	136,317											136,317		
15	CONTRACTS & RISK MGMT.	1,606,491			(28,046)		(\$1,203,981)			(88,471)		(\$18,700)	267,293		
13	FINANCIAL MGMT	878,365			(2,418)								875,947		
34	AUTO SHOP	214,354		143,557						16,587			374,498		
35	AUTO SHOP-CANAL	176,405											176,405		
10	EXEC OFFICE	236,247	4,224										240,471		
20 30 31 32 33	WATERSHED, ENGINEERING & O&M (RARITAN SYSTEM)	6,526,475	(73,730)		33,219		1,203,981			88,471		5,707	18,700	(18,325)	7,784,497
		11,729,842	0	0	0	0	0	0	0	0	0	0	0	(18,325)	11,711,517
40-60	MANASQUAN SYSTEM	4,565,954											18,325		4,584,279
		<u>\$16,295,795</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$16,295,795</u>

See accompanying Notes to Financial Schedules.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**SCHEDULE OF SYSTEM-WIDE ALLOCATION COSTS**  
**YEAR ENDED JUNE 30, 2015**  
**(See Independent Accountants' Report)**

ALLOCATION BASIS															
DEPT. #	DEPT./COST CENTER	REVISED COST CENTER COSTS	SQ. FT. #	# OF TELEPHONES	# OF EMPLOYEES	100 % RARITAN O&M	# OF EMPLOYEES	# OF P.O.s	# OF COMPUTERS	MGD CONTRACTS	O&M BUDGET	# OF VEHICLES	# OF VEHICLES	TIME ESTIMATE	ALLOCATED COST CENTER COSTS
	BUILDING HQ	\$69,507	<u>(\$69,507)</u>												
	TELEPHONE HQ	\$83,797	0	<u>(\$83,797)</u>											
36	SAFETY	\$180,947	522	921	<u>(\$182,390)</u>										
37	SECURITY	\$862,198	2,670	3,683	14,656	<u>(\$883,207)</u>									
14	HUMAN RESOURCES	\$381,825	3,215	3,683	4,885	0	<u>(\$393,608)</u>								
16	PURCHASING	\$277,816	3,547	2,763	3,257	0	7,872	<u>(\$295,255)</u>							
17	INFORMATION SYSTEMS	\$136,317	740	921	1,628	0	3,936	8,307	<u>(\$151,849)</u>						
15	CONTRACTS & RISK MGMT.	\$267,293	2,310	1,842	3,257	0	7,872	4,684	4,898	<u>(\$292,156)</u>					
13	FINANCIAL MGMT	\$875,947	6,729	6,446	11,399	0	27,553	7,865	22,043	0	<u>(\$957,982)</u>				
34	AUTO SHOP	\$374,498	10,960	1,842	1,628	0	3,936	13,786	7,348	0	27,261	<u>(\$441,259)</u>			
35	AUTO SHOP-CANAL	\$176,405	0	1,842	1,628	0	3,936	10,340	4,898	0	12,841	0	<u>(\$211,890)</u>		
10	EXEC OFFICE	\$240,471	9,326	6,446	1,628	0	3,936	1,944	4,898	0	17,505	0	0	<u>(\$286,154)</u>	
20 30 31 32 33	WATERSHED, ENGINEERING & O&M (RARITAN SYSTEM)	\$7,784,497	29,488	53,408	96,083	883,207	232,229	128,848	80,823	262,542	566,666	441,259	211,890	256,823	\$11,027,763
40-60	MANASQUAN SYSTEM	\$4,584,279	0	0	42,341	0	102,338	119,481	26,941	29,614	333,709	0	0	29,331	5,268,034
		<u>\$16,295,795</u>	<u>\$0</u>	<u>\$0</u>	<u>(\$0)</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>(\$0)</u>	<u>\$0</u>	<u>\$0</u>	<u>(\$0)</u>	<u>\$0</u>	<u>\$16,295,797</u>

See accompanying Notes Financial Schedules.

**NEW JERSEY WATER SUPPLY AUTHORITY  
SCHEDULE OF COST ALLOCATION FACTORS  
YEAR ENDED JUNE 30, 2015  
(See Independent Accountants' Report)**

		REQUIRED STATISTICS										
ALLOCATION OF:	BUILDING HQ	TELEPHONES	SAFETY	HUMAN RESOURCES	PURCHASING	INFORMATION SYSTEMS	RISK MGMT	FINANCE O&M	AUTO SHOP	AUTO SHOP CANAL	EXEC. OFF	
ALLOCATION BASIS:	SQ. FT.	# OF	# OF	# OF	# OF	# OF	MGD	FUNCTIONAL COST	# OF	# OF	TIME ESTIMATE	
DEPT. #	DEPT./COST CENTER	#	TELEPHONES	EMPLOYEES	EMPLOYEES	P.O.'S	CONTRACTS		VEHICLES	VEHICLES		
	BUILDING HQ											
	TELEPHONE HQ											
36	SAFETY	110	1									
37	SECURITY	563	4	9								
14	HUMAN RESOURCES	678	4	3								
16	PURCHASING	748	3	2	2							
17	INFORMATION SYSTEMS	156	1	1	1	94						
15	CONTRACTS & RISK MGMT.	487	2	2	2	53	2					
13	FINANCIAL MGMT	1,419	7	7	7	89	9	0				
34	AUTO SHOP	2,311	2	1	1	156	3	0	\$374,498			
35	AUTO SHOP-CANAL	0	2	1	1	117	2	0	\$176,405			
10	EXEC OFFICE	1,967	7	1	1	22	2	0	240,471	0		
20 30 31 32 33	WATERSHED, ENGINEERING & O&M (RARITAN SYSTEM)	6,218	58	59	59	1,458	33	182	7,784,497	40	40	89.75
40-60	MANASQUAN SYSTEM			26	26	1,352	11	21	4,584,279			10.25
		14,657	91	112	100	3,341	62	203	\$13,160,149	40	40	100 %

See accompanying notes Financial Schedules.

**NEW JERSEY WATER SUPPLY AUTHORITY  
SCHEDULE OF MANASQUAN SYSTEM ALLOCATION COSTS  
YEAR ENDED JUNE 30, 2015  
(See Independent Accountants' Report)**

COSTS	ALLOCATION BASIS					ALLOCATED COSTS	
	1 TIME STUDY	2 \$ VALUE OF VEHICLES	3 \$ VALUE OF EQUIPMENT	4 TIME STUDY	5 VALUE OF WATER CONTRACTS		
<u>GENERAL &amp; ADMINISTRATIVE</u>							
SALARIES & FRINGES	\$2,595,138	<u>(\$2,595,138)</u>					
VEHICLE RELATED	86,289	<u>(\$86,289)</u>					
MAINT. SUPPLIES & RELATED	63,887		<u>(\$63,887)</u>				
OFFICE & MISC.	39,100			<u>(\$39,100)</u>			
H.Q. OVERHEAD	702,080				<u>(\$702,080)</u>		
RESERVOIR	902,749	1,317,446	57,546	28,072	18,801	609,319	\$2,933,933
TREAT./TRANS.	878,791	1,277,692	28,743	35,815	20,299	92,761	2,334,101
	<u>\$5,268,034</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>(\$0)</u>	<u>\$5,268,034</u>

See accompanying notes Financial Schedules.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**NOTES TO FINANCIAL SCHEDULES**  
**JUNE 30, 2015**  
**(See Independent Accountants' Report)**

**NOTE 1    GENERAL**

The New Jersey Water Supply Authority as part of its annual budget and rate making process performs a two-step cost allocation calculation. During the first step, the Authority calculates its actual expenses by Cost Center. For purposes of this calculation the Authority uses the following Cost Centers:

Raritan System

- Building Headquarters
- Telephone Headquarters
- Safety
- Security
- Human Resources
- Purchasing
- Information Systems
- Contracts & Risk Management
- Financial Management
- Auto Shop
- Auto Shop - Canal
- Executive Office
- Engineering, Watershed Management, Operations and Maintenance (Raritan System)

Manasquan System

In deriving expenses by Cost Center several expense reclassifications are made on the Schedule of Forecasted Cost Center Expense Reclassification as follows:

1. Heating and electricity expenses related to Building Headquarters ("HQ") and Executive Office are reclassified from Engineering and Operations & Maintenance ("O & M").
2. Vehicular fuel expense related to Auto Shop is reclassified from Purchasing.
3. Professional fees related to O & M are reclassified from the various departments to which they have been charged.
4. Insurance premium expense related to the Raritan System is reclassified from Contracts and Risk Management.
5. Telephone expense is reclassified from Purchasing to a separate Telephone HQ Cost Center.
6. Permit expense related to the Raritan System is reclassified from Contracts and Risk Management and Purchasing.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**NOTES TO FINANCIAL SCHEDULES**  
**JUNE 30, 2015**  
**(See Independent Accountants' Report)**

**NOTE 1    GENERAL (CONTINUED)**

7.    Workers' compensation expense related to the Raritan System is reclassified from Contracts and Risk Management.
8.    In-lieu taxes related to the Raritan System are reclassified from Contracts and Risk Management.
9.    Chief Engineer Salary & Fringe Expenses related to the Manasquan System are reclassified from the Engineering Department.

The second step entails a step-down allocation of eleven of the Authority's Cost Centers to the Raritan and Manasquan System Cost Centers. In making this step-down allocation the Authority allocates cost as follows:

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11.    Executive Office is allocated based on the amount of executive time utilized in managing each of the Systems.

**NEW JERSEY WATER SUPPLY AUTHORITY**  
**NOTES TO FINANCIAL SCHEDULES**  
**JUNE 30, 2015**  
**(See Independent Accountants' Report)**

**NOTE 2    MANASQUAN SYSTEM ALLOCATED COST**

The Manasquan Water Supply System's direct and allocated costs are then allocated between the Reservoir System and the Water Treatment Plant/Transmission System. In making this allocation the Authority adds to each System's direct expenses, the indirect costs allocated as follows:

1. Salaries and Fringe Benefits are allocated based on actual time studies performed by each employee throughout Fiscal Year 2015.
2. Vehicle related expenses are allocated based on the dollar value of vehicles held by each System.
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4. Office and miscellaneous expenses are allocated based on the time studies performed by each employee throughout Fiscal Year 2015.
5. Headquarters Overhead expenses are allocated based on the value of water contracts for each System.