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**MARK**

**FY 1998 – 2002  
CAPITAL IMPROVEMENT  
PROGRAM**



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**SEPTEMBER, 1997**



## ***ACKNOWLEDGEMENTS***

The fiscal year 1998-2002 Capital Improvement Program was prepared by Jackie Saul, Environmental Planner, Division of Administration and Finance, based on input from staff from all sections and divisions of the NBC.

The development of this CIP also involved the cooperation, assistance and guidance of Paul Pinault, Executive Director, the Board of NBC Commissioners and its Construction, Engineering and Operations Committee as well as the NBC's Citizen's Advisory Committee.

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**BRIEF  
PROJECT LISTINGS**

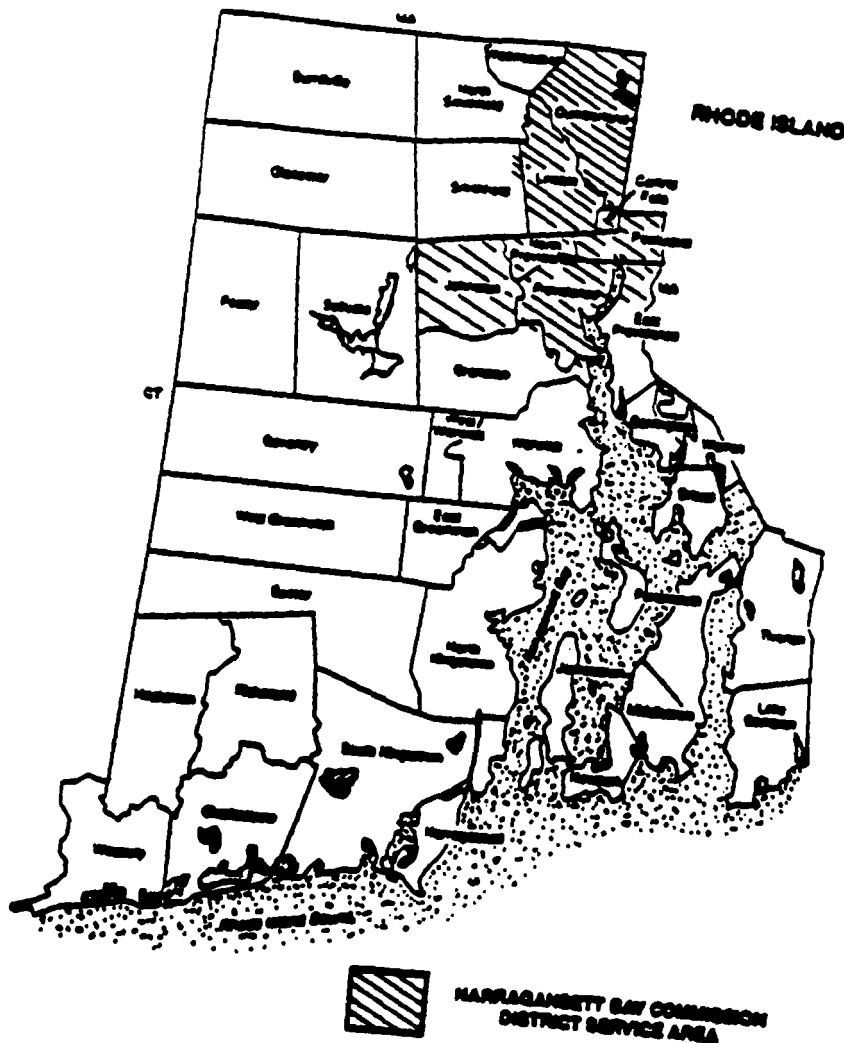
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## SERVICE AREA

### of the NARRAGANSETT BAY COMMISSION

The Narragansett Bay Commission (NBC) was created in 1980. In 1982, the NBC acquired the Field's Point Wastewater Treatment Facility (FPWWTF) in Providence. This facility serves the communities of Providence and North Providence, and portions of the towns of Johnston, Lincoln and the City of Cranston. On January 1, 1992, the NBC assumed ownership of the Bucklin Point Wastewater Treatment Facility (BPWWTF) and expanded its district to include the Cities of Pawtucket, and Central Falls, the Towns of Cumberland and Lincoln, and portions of East Providence and Smithfield.



A brief description of the facilities within NBC district is located in the appendix.

**FY 1998 - 2002 CAPITAL IMPROVEMENT PROGRAM**

**PROJECT LIST**

<b>WASTEWATER TREATMENT FACILITY IMPROVEMENTS</b>		<b>1998-2002</b>
CONTRACT 101: FINAL CLARIFIERS AND CONTROL SYSTEM	\$	460,000
CONTRACT 102: FPWWTF DRY WEATHER AND CSO CHLORINATION/DECHLORINATION SYSTEM	\$	3,500,000
CONTRACT 103: SHORT TERM SOLIDS HANDLING IMPROVEMENTS	\$	12,773,000
CONTRACT 104: SEPTAGE RECEIVING FACILITIES	\$	660,000
CONTRACT 105: FPWWTF STORAGE BUILDING AND MISCELLANEOUS CSO AND OTHER IMPR.	\$	2,500,000
LONG TERM SLUDGE MANAGEMENT PLAN FOR FPWWTF AND BPWWTF	\$	100,000
CONTRACT 803: BPWWTF SERVICE BUILDING IMPROVEMENTS	\$	127,000
CONTRACT 807: BPWWTF IMPROVEMENTS	\$	38,102,000
CONTRACT 809: BUCKLIN POINT NORTH LANDFILL CLOSURE	\$	55,000
SITE SPECIFIC CRITERIA	\$	300,000
LABORATORY EQUIPMENT: ICP/MS	\$	200,000
SKALAR AUTOMATED BOD SYSTEM	\$	50,000
TRACE METALS CLEAN ROOM IN EXISTING LABORATORY	\$	350,000
SUBTOTAL		\$ 59,177,000
<b>SEWER SYSTEM IMPROVEMENTS</b>		<b>1998-2002</b>
CONTRACT 302: COMPREHENSIVE COMBINED SEWER OVERFLOW PROGRAM	\$	48,400,000
CONTRACT 302.2: CSO REASSESSMENT	\$	600,000
CONTRACT 304: EVALUATION AND CLEANING OF CSO INTERCEPTORS	\$	1,590,000
CONTRACT 305: CSO 2B HEADWALL IMPROVEMENTS	\$	1,050,000
CSO FLOWMETERS	\$	52,000
CSO 049 OUTFALL MODIFICATIONS	\$	750,000
CONTRACT 404: GANO ST. TO PITMAN ST. INTERCEPTOR REPLACEMENT	\$	10,000
CONTRACT 504: IMPROVEMENTS TO NBC-OWNED INTERCEPTORS IN JOHNSTON	\$	3,975,000
CONTRACT 701: REPLACEMENT OF THE SAYLESVILLE PUMPING STATION	\$	611,000
CONTRACT 702: INFILTRATION/INFLOW STUDY: LOUISQUISSET PIKE AREA	\$	50,000
CONTRACT 902: GEOGRAPHIC INFORMATION SYSTEM IMPLEMENTATION	\$	1,300,000
INVESTIGATION AND REHAB. OF WASHINGTON HWY AND OMEGA PUMP STATIONS	\$	- 100,000
SUBTOTAL		\$ 58,488,000
<b>BUILDINGS AND GROUNDS</b>		<b>1998-2002</b>
REHABILITATION OF 459 PROMENADE STREET BUILDING	\$	517,000
VEHICLE REPLACEMENTS	\$	610,000
SUBTOTAL		\$ 1,127,000
<b>GRAND TOTAL</b>		<b>\$ 118,792,000</b>



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## **SECTION I**

### **CIP OVERVIEW**

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## FISCAL YEAR 1998 - 2002 CAPITAL IMPROVEMENT PROGRAM

This year's Capital Improvement Program (CIP) identifies over \$118 million of capital improvement projects in progress, to be initiated or completed within the next five fiscal years (fiscal years 1998 - 2002). It also reflects total expenditures of approximately \$508 million for the completion all scheduled projects.

The CIP identifies each capital project, defined as a capital expenditure greater than \$20,000, by functional area (wastewater treatment facilities, sewer systems and buildings and grounds). Cash flows for each project and functional area are provided and the funding sources and schedules are also shown. Project costs are also depicted by phase (planning, design and construction).

There are many factors that can impact the Narragansett Bay Commission's (NBC) sources of capital. This CIP attempts to take into consideration the most significant of these factors such as the State of Rhode Island's capital budget, the maximum funding available under the State Revolving Loan Fund program (SRF) and pending federal legislation to accurately reflect the costs associated with the funding of this program and the resulting impact upon users within the service area.

It should also be noted that for the purpose of simplification, this CIP does not include the financing costs associated with new debt in the individual project description sheets. These costs are reflected in the debt service calculations.

### SIGNIFICANT CAPITAL PROJECTS

#### Contract 302: Comprehensive Combined Sewer Overflow Abatement Project

The Combined Sewer Overflow Abatement Project continues to remain the most significant project underway by the NBC. This project alone comprises 41% of the total costs outlined in this document over the next five years.

Currently the Cities of Providence, Pawtucket and Central Falls have combined sanitary-storm sewers which overflow into area rivers at approximately 84 locations during wet weather. The CSO Program, which will be completed over a twenty-two year period, will provide a combination of facilities to treat the combined sewage.

A Conceptual Design Report, recommending the facilities to be constructed and setting priorities for their construction was submitted to the Department of Environmental Management (RIDEM) in March 1993 for approval. The total project cost in 1992 dollars was \$476,000,000. On July 15, 1994, RIDEM approved the modified Conceptual Design Report.

In April 1994, the U.S. EPA revised its national CSO Policy to provide more flexibility to communities in developing CSO control plans and to possibly reduce the cost of the control program. In response to the changes in the national CSO policy, in January 1996 the Commission began a series of CSO stakeholder meetings and invited approximately forty interested groups to attend (i.e., cities and towns in district, US EPA, RIDEM, RI Department of Administration, Chamber of Commerce, Environmental Groups, AARP, etc.). The purpose of these meetings was to educate all groups about the need for the CSO project, to discuss if there were cheaper options available to solve the problem and to determine if the Commission should reassess the approved plan. As a result of these meetings, it was agreed to reevaluate less costly alternatives and to further assess the economic impact of the project on the users.

The CSO stakeholders began meeting again in October 1996 to evaluate alternatives for CSO control based on the revised EPA CSO policy. In August 1997 the stakeholders agreed on an alternative that would reduce the cost of the project from \$559 million (in 1997 dollars), for the currently approved new plan to \$389 million.

The description schedule and costs for this alternative are provided in the detailed project listings.

## PROGRAM CHANGES

### Wastewater Treatment Facilities (WWTF)

- Included in this year's CIP is a Long Term Sludge Management Plan for the Field's Point and Bucklin Point Wastewater Treatment Facilities. Currently sludge disposal for the Field's Point facility involves incineration of wastewater sludge at Field's Point, with ash disposal at the Central Landfill and contract disposal services as backup. The sludge disposal options for Bucklin Point as recommended in the recently completed Bucklin Point Facilities Plan, involve contract disposal and/or incineration at Field's Point. Changing regulatory requirements and redundancy are concerns over the long term. This project involves the development of a long term plan for the treatment and disposal of sludge from both NBC WWTF's that would provide rate stability while maintaining redundancy and compliance with regulatory requirements. In the meantime, Contract 103: Short Term Solids Handling Improvements will provide improvements to the incinerator and solids handling equipment at the Field's Point plant.

This year's CIP includes the purchase of additional monitoring equipment for the laboratory section which will automate laboratory functions and enhance

performance when analyzing industrial waste samples in accordance with EPA requirements. In addition, this year's CIP reflects the construction of a Trace Metals Clean Room within the existing laboratory. Due to EPA's discharge limits, especially for metals and organic compounds, lower detection limits are being required. The lower the limits; however, the more likely the chance of laboratory testing environment contamination. To avoid the contamination of samples, a contaminate free room or a new modern state-of-the-art laboratory needs to be constructed. If it is determined that a trace metals clean room cannot be built within the existing laboratory, a new laboratory may need to be constructed which would house both the Field's Point and Bucklin Point laboratories.

### Sewer System

The Replacement of the Moshassuck Valley CSO Interceptor and the Seekonk River CSO Interceptor Cleaning projects have been combined and incorporated into a new project identified as Contract 304: Evaluation and Cleaning of CSO Interceptors. This project will involve the long term ongoing evaluation of several interceptor sewers throughout the NBC Service areas to determine their condition and develop solutions to correct any problems that may be identified. Contract 503: Improvements to NBC-Owned Interceptors in Johnston has been deleted from this year's CIP. One additional project reflected this year is the Investigation and Rehabilitation of Washington Highway and Omega Pump Stations.

### Buildings and Grounds

Included in this year's CIP is the Rehabilitation of the NBC's building at 459 Promenade Street Building. This project includes the replacement of windows, upgrading of electrical, heating and plumbing systems, providing handicap accessibility, as well as the construction of additional office space to accommodate staff presently housed in other NBC buildings. This project replaces the Windows, Heating System, and Office Space Planning projects noted in last year's CIP.

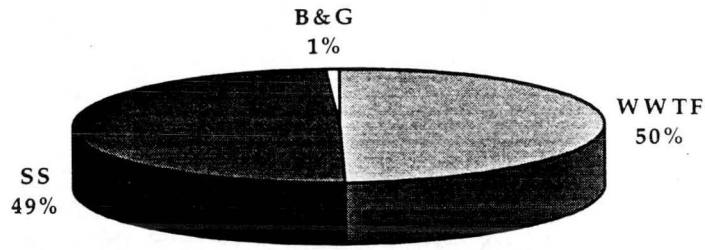
### COSTS BY FUNCTIONAL AREA

The capital projects have been assigned to functional area as follows:

Buildings and Grounds (BG) projects include building repairs and equipment purchases to support NBC staff. Field's Point and Bucklin Point Wastewater Treatment Facility (WWTF) improvements include the contracts related to facility improvements, laboratory, septage receiving and various facility maintenance projects. Sewer System (SS) improvements include the Combined

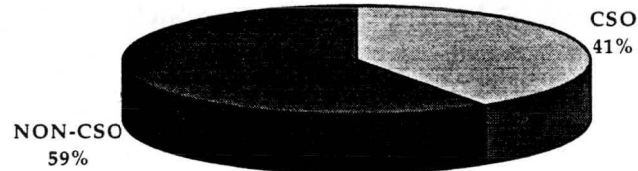
Sewer Overflow project, interceptor rehabilitation, and outlying sewer construction and pumping station improvements. Of the \$118.8 million in capital improvements scheduled over the next five years, 49% or \$58.4 million of the total costs fall within the sewer system category, 50% or \$59.1 million are for wastewater treatment facility improvements, and 1% or \$1 million are for buildings and grounds projects.

#### **COST BY FUNCTIONAL AREA**



To readily view the magnitude of the CSO program, the chart below shows that the CSO program related costs account for \$48.4 million or 41% of the total five year capital program.

#### **CSO vs. NON-CSO COSTS**



## FISCAL IMPACT

The CIP is a planning document and the costs and schedules it reflects are based on the best available information. Experience dictates that as projects proceed from planning to construction, costs generally increase. There are several funding sources for scheduled CIP projects and many projects will have funding from more than one source. The funding options available are as follows:

### Grants

Federal grants were provided by the United States Environmental Protection Agency under the Construction Grants Program. Grants were between 55% and 75% of the total eligible project cost. In addition, RIDEM provided a federal grant match with a grant of 15% of the total eligible project cost. The Construction Grants Program has been phased out and replaced with the State Revolving Loan Fund. The only active construction grants are funded via the State Aquafund.

### BVDC Bonds

The NBC merged with the former Blackstone Valley District Commission (BVDC) on January 1, 1992. The former BVDC had the use of state general obligation (g.o.) bonds issued on their behalf. A statewide voter referendum approved in 1971 authorized \$3.3 million in g.o. bonds for site specific uses such as the planning, construction and equipping of interceptor sewer extension for the Washington Highway Interceptor. In 1986, a statewide voter referendum was passed by the voters authorizing the use of \$17.2 million for upgrades and improvements to the Bucklin Point facility and its interceptor system.

Prior to the merger, debt service was recovered through billings to each of the municipalities served by the Bucklin Point facility. Debt service was allocated based on the proportion of the community's flow to the total flow. As a result of NBC's most recent rate filing, all debt service is now billed directly to the users.

### Bay Bonds

In 1980, an \$87.7 million bond issue was passed by the voters to finance improvements to the NBC sewer system which would result in improved water quality. Of the \$87.7 million in Bay Bonds, \$15 million of the authorization was transferred to the former Blackstone Valley District Commission (\$6 million) and the Pawtuxet River Authority (\$9 million) during the 1990 session of the Rhode Island General Assembly. A \$15 million NBC bond issue was passed in the 1992

general election to replace these funds. As a result, a total of \$93.7 million in Bay Bonds have been authorized for NBC by voters. A total of \$67.5 million has been issued.

Of the \$93.7 million authorized, R.I. General Law 46-25 requires that NBC users be responsible for the debt service on \$14.059 million. To date, user charges are financing the debt service on \$13.485 million of this amount. This means that users will be responsible for the debt service on a maximum of \$0.574 million of the unissued \$26.2 million Bay Bonds. The remaining amount will become an obligation of the State.

The State Budget Office is responsible for the issuance of Bay Bonds on behalf of NBC. The projected availability of Bay Bonds noted in the CIP is consistent with the State of Rhode Island's Capital Budget. It should be noted, however, that the State occasionally modifies the bond issuance schedule set forth in the State Capital Budget.

#### State Revolving Fund (SRF)

When the Construction Grants Program was phased out as a result of the 1987 reauthorization of the Federal Clean Water Act it was replaced with the SRF program. The SRF finances water quality improvement projects through a low interest loan program. According to officials at the Rhode Island Clean Water Finance Agency, \$260 million is the maximum funding available through the end of fiscal year 2002. The actual amount that will be available is dependent upon congressional action and the borrowings of other Rhode Island communities.

The SRF program is administered by the Rhode Island Clean Water Finance Agency. As a public corporation of the State, the agency receives its funding through capitalization grants from the EPA and state bond issues and by selling its own tax-exempt revenue bonds supported by these capitalization grants. The agency loans funds to municipalities, sewer commissions, and wastewater management districts for water pollution abatement projects upon approval by RIDEM. Loans are at a rate one-third below the borrowers' market cost of borrowing. The Agency's operating expenses are funded solely by loan fees and investment income generated from administering the SRF.

The NBC has used \$8 million in SRF funds to finance contracts 201, 401 and 601. In fiscal year 1993, the NBC was the recipient of a \$14.781 million pool loan. After deducting financing costs, \$13.7 million is available for projects. The pool loan has been used to finance a variety of projects including preliminary design of the Contract 302: Comprehensive Combined Sewer Overflow Abatement Program, Contracts 101, 102, 103, 301, 504 and 701. In addition, the NBC was able to finance the construction costs of Contracts 701 and 803 from the proceeds of

these SRF loans. In fiscal year 1994, the NBC received a second pool loan in the amount of \$17.8 million which will be used for Contracts 101, 404, 807 and 902. In fiscal year 1997, the NBC received its third pool loan in the amount of \$8.15 million which has been earmarked for the following projects: Construction of Contract 504; Design of Contract 103; Planning of Project 702; and Implementation of Contract 902.

The financing costs associated with the SRF program are reflected in the debt service calculations.

#### Revenue Bonds

This category includes those projects that are to be funded via Revenue Bonds and all debt service that will be paid from user charges. In general, revenue bonds will be used only to finance those projects that are not eligible for SRF funding or once all SRF funds are exhausted. The financing costs associated with the issuance of revenue bonds are reflected in the debt service calculations. This year's CIP does not propose to fund any projects with revenue bonds since it is the NBC's most expensive means of financing capital improvements.

#### Replacement Reserve

The NBC has established a replacement reserve to fund the replacement of vehicles and equipment at the end of their useful life. This account is funded by user charges via a restricted account.

#### Operating Budget

The operating budget is financed by sewer user charges. It funds the purchase of non-replacement capital equipment and facilities and may also reflect the annual operating expense associated with short term financing.



## Summary

Funding source and cash flows by functional area are shown in Table 1 below.

**Table 1**  
(Cash Flow Basis in Thousand \$'s)  
Wastewater Treatment Facilities

Funding Source	FY 98	FY 99	FY 00	FY 01	FY 02	Total
Grant	0	0	0	0	0	0
BVDC Bonds	80	0	0	0	0	80
Bay Bonds	5,435	1,830	70	0	0	7,335
SRF	2,219	3,393	15,761	16,839	12,895	51,107
Revenue Bonds	0	0	0	0	0	0
Rep. Reserve	50	0	0	200	0	250
Op. Budget	405	0	0	0	0	405
<b>Total</b>	<b>8,189</b>	<b>5,223</b>	<b>15,831</b>	<b>17,039</b>	<b>12,895</b>	<b>59,177</b>

### Sewer System Improvements

Funding Source	FY 98	FY 99	FY 00	FY 01	FY 02	Total
Grant	90	0	0	0	0	90
BVDC Bonds	0	0	0	0	0	0
Bay Bonds	1,731	5,521	4,300	10,200	9,028	30,780
SRF	4,026	1,325	395	300	21,572	27,618
Revenue Bonds	0	0	0	0	0	0
Rep. Reserve	0	0	0	0	0	0
Op. Budget	0	0	0	0	0	0
<b>Total</b>	<b>5,847</b>	<b>6,846</b>	<b>4,695</b>	<b>10,500</b>	<b>30,600</b>	<b>58,488</b>

### Buildings & Grounds

Funding Source	FY 98	FY 99	FY 00	FY 01	FY 02	Total
Grant	0	0	0	0	0	0
BVDC Bonds	0	0	0	0	0	0
Bay Bonds	0	0	0	0	0	0
SRF	327	190	0	0	0	517
Revenue Bonds	0	0	0	0	0	0
Rep. Reserve	50	255	135	70	100	610
Op. Budget	0	0	0	0	0	0
<b>Total</b>	<b>377</b>	<b>445</b>	<b>135</b>	<b>70</b>	<b>100</b>	<b>1,127</b>

The estimated cost of the projects identified in this year's capital program is approximately \$118.8 million over the next five years. Table 2 summarizes the projected cash flows from each of the funding sources.

Table 2  
(In Thousand \$'s)

Total Funding Sources

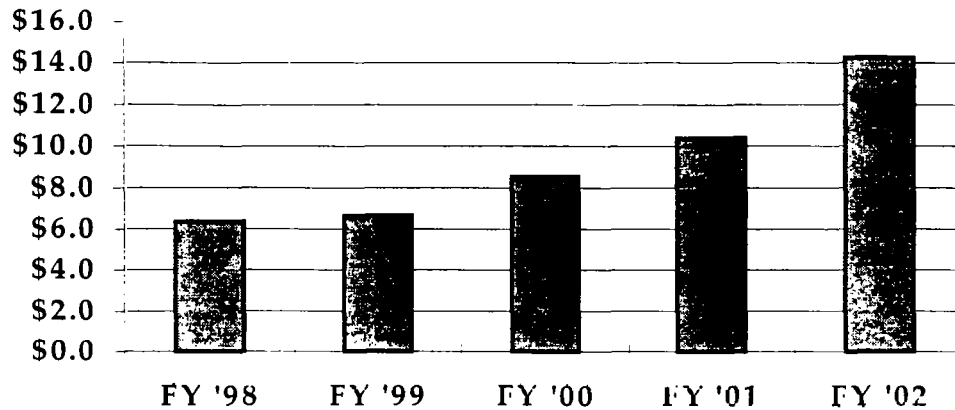
Funding Source	FY 98	FY 99	FY 00	FY 01	FY 02	Total
Grant	90	0	0	0	0	90
BVDC Bonds	80	0	0	0	0	80
Bay Bonds	7,166	7,351	4,370	10,200	9,028	38,115
SRF	6,572	4,908	16,156	17,139	34,467	79,242
Revenue Bonds	0	0	0	0	0	0
Rep. Reserve	100	255	135	270	100	860
Op. Budget	405	0	0	0	0	405
Total	14,413	12,514	20,661	27,609	43,595	118,792

Based on the State's current capital budget, existing bond authorizations, and projected rates of expenditure, it appears that the Bay Bonds will be exhausted by fiscal year 2002. At that point, the NBC will pursue the use of SRF funds as the least costly alternative and will utilize the SRF program as its primary source of funding for NBC's capital program. Approximately \$79.2 million in SRF funds are anticipated to be expended over the next five years.

#### IMPACT OF TOTAL ANNUAL REVENUE REQUIREMENTS AND SEWER USER FEES

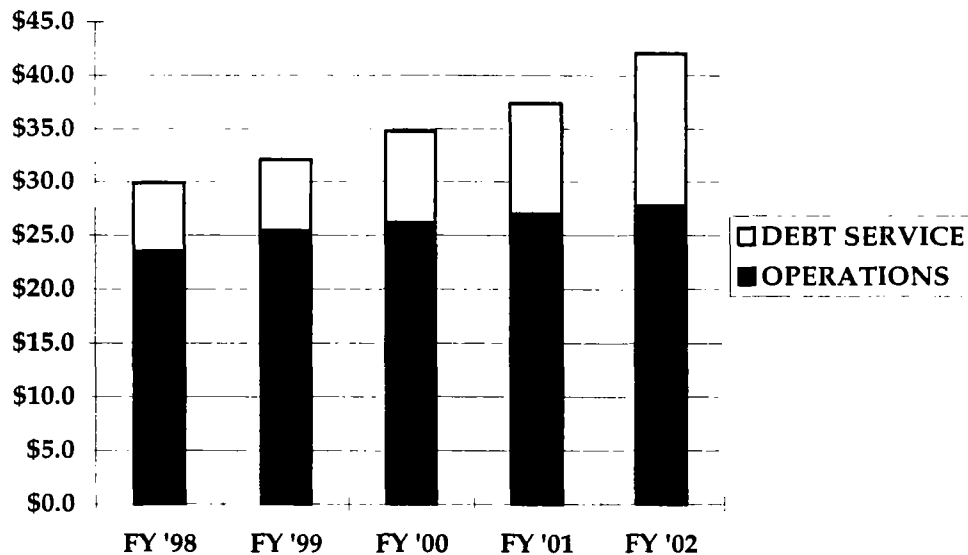
As the NBC proceeds with the construction phase of the CSO mitigation project and financing mechanisms become more costly, the impact of the capital program on NBC's budget and ultimately its users becomes more significant. In order to assess the fiscal impact of the improvements, debt service payments have been estimated from the cash flow projections. As depicted graphically on the next page, annual debt service increases from \$6.4 million in fiscal year 1998 to \$14.2 million in fiscal year 2002.

### ANNUAL DEBT SERVICE (In Million \$'s)



Of the \$29.9 million total revenue requirement in fiscal year 1998, \$6.4 million or 23% is for debt service. Assuming a reasonable increase of 3% per year to the operating budget (without debt service) beginning in fiscal year 1998, a total revenue requirement of approximately \$42 million is needed in fiscal year 2002. Of this amount, debt service would account for \$14.2 million or approximately 34% of the total annual budget as shown in the following graph.

### ANNUAL REVENUE REQUIREMENT (In Million \$'s)



## SEWER USER FEES

The NBC is regulated by the Public Utilities Commission (PUC). Any modifications to NBC user fees are subject to a lengthy.. review and approval process by the PUC. NBC's current revenue requirement is \$29.9 million. Included in this revenue requirement is an allowance of \$7.2 million for debt service and debt service coverage on SRF loans. This Capital Program will require additional rate relief to fund debt service. Further, the PUC has placed specific restrictions on the expenditure of funds in excess of those they specifically allowed in the Order for the CSO project.

Despite the substantial number of capital improvements that the NBC has made to its facilities it should be noted that the NBC and its users enjoy one of the lowest annual sewer user bills not only within Rhode Island, but nationally as well.

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## **SECTION II**

### **DETAILED PROJECT LISTINGS**

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**WASTEWATER  
TREATMENT FACILITY  
IMPROVEMENTS**

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## WASTEWATER TREATMENT FACILITY PROJECTS ...A LISTING

The following is a listing of the 13 Wastewater Treatment Facility Projects which have been included in the current Capital Improvement Program. An explanation and cost breakdown of each of these projects is included in this section. The total cost of these projects during this five year period is

**\$59,177,000**

PROPOSED PROJECT	1998-2002
CONTRACT 101: FINAL CLARIFIERS AND CONTROL SYSTEM	\$ 460,000
CONTRACT 102:FPWWTF DRY WEATHER AND CSO CHLORINATION/DECHLORINATION SYSTEM	\$ 3,500,000
CONTRACT 103: SHORT TERM SOLIDS HANDLING IMPROVEMENTS	\$ 12,773,000
CONTRACT 104: SEPTAGE RECEIVING FACILITIES	\$ 660,000
CONTRACT 105: FPWWTF STORAGE BUILDING AND MISCELLANEOUS CSO AND OTHER IMPR.	\$ 2,500,000
LONG TERM SLUDGE MANAGEMENT PLAN FOR FPWWTF AND BPWWTF	\$ 100,000
CONTRACT 803: BPWWTF SERVICE BUILDING IMPROVEMENTS	\$ 127,000
CONTRACT 807: BPWWTF IMPROVEMENTS	\$ 38,102,000
CONTRACT 809: BUCKLIN POINT NORTH LANDFILL CLOSURE	\$ 55,000
SITE SPECIFIC CRITERIA	\$ 300,000
LABORATORY EQUIPMENT: ICP/MS	\$ 200,000
SKALAR AUTOMATED BOD SYSTEM	\$ 50,000
TRACE METALS CLEAN ROOM IN EXISTING LABORATORY	\$ 350,000
SUBTOTAL	\$ 59,177,000

**CONTRACT 101:**

**PROJECT DESCRIPTION**

FPWWTF  
IMPROVEMENTS TO  
FINAL CLARIFIER  
AND  
CONTROL SYSTEM  
UPGRADE

Contract 101 encompasses several improvements to the FPWWTF including: the demolition of the seven (7) existing final clarifiers chlorine field lab and chlorine contact tank; construction of three (3) 125 foot final clarifiers; a return sludge pump station; a valve station and a splitter box; replacement of the existing instrumentation and control computer system; and miscellaneous other improvements throughout the plant. This project was declared substantially complete on February 14, 1997.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	163						0		163
SRF	11,773	460					460		12,233
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>11,936</b>	<b>460</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>460</b>		<b>12,396</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	From 3/92 to 4/93 (13 Months)	\$163
DESIGN	From 4/93 to 6/94 (14 Months)	\$878
CONSTRUCTION	From 10/94 to 2/97 (28 Months)	\$11,355
<b>TOTAL</b>		<b>\$12,396</b>



**CONTRACT 102 :**

**PROJECT DESCRIPTION**

FPWWTF DRY WEATHER AND  
CSO  
CHLORINATION/  
DECHLORINATION  
SYSTEM

This design and construction project will implement the recommendation for the Field's Point portion of the Facilities Plan Amendment for Disinfection Alternatives at the Field's Point and Bucklin Point WWTF's. At Field's Point it is recommended that sodium hypochlorite be used for disinfection and sodium bisulfite for dechlorination. The recommendation for the Bucklin Point WWTF will be implemented separately under Contract 807 (Bucklin Point WWTF Improvements).

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	253	2,125	1,305	70			3,500		3,753
SRF-	250						0		250
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>503</b>	<b>2,125</b>	<b>1,305</b>	<b>70</b>	<b>0</b>	<b>0</b>	<b>3,500</b>		<b>4,003</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	Completed as part of 102P	\$253
DESIGN	From 3/96 through 11/96 (8 Months)	\$250
CONSTRUCTION	From 9/97 through 3/99 (18 Months)	\$3,500
<b>TOTAL</b>		<b>\$4,003</b>

CONTRACT 103:

SHORT TERM  
SOLIDS  
HANDLING  
IMPROVEMENTS

PROJECT DESCRIPTION

This project implements a variety of improvements that are required to enable the NBC to continue to incinerate sludge at its Field's Point facility. Some of the improvements include the: 1) purchase of particulate removal equipment to improve air emissions; 2) addition of incinerator controls for ease of operation and control; 3) installation of other miscellaneous incinerator equipment; 4) new dewatering equipment which will result in more reliable operations.

PROJECT FINANCING & EXPENDITURES  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF	186	968	2,293	5,568	3,944		12,773		12,959
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	186	968	2,293	5,568	3,944	0	12,773		12,959

PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
PLANNING	From 2/96 to 7/97 (18 Months)	\$204
DESIGN	From 9/97 to 8/98 (12 Months)	\$1,155
CONSTRUCTION	From 3/99 to 2/01 (24 Months)	\$11,600
TOTAL		\$12,959

CONTRACT 104:

SEPTAGE  
RECEIVING  
FACILITY

#### PROJECT DESCRIPTION

The facilities planning study and marketing survey for septage receiving concluded that there are sufficient septage receiving facilities within the State of Rhode Island to handle the septage generated. However, certain aspects of the Lincoln Septage Receiving Facility need upgrading to address the operational inefficiencies. The identified areas of need are: more efficient method of grit removal; odor control to meet existing and additional needs resulting from the new grit removal system; construction of bathroom and sampling areas, and an evaluation of existing HVAC system and capacities. This project involves the design and construction of these facilities.

#### PROJECT FINANCING & EXPENDITURES

(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE						5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
	JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02			
GRANT							0		0
BVDC BONDS	72	80					80		152
BAY BONDS							0		0
SRF	50		58	522			580		630
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>122</b>	<b>80</b>	<b>58</b>	<b>522</b>	<b>0</b>	<b>0</b>	<b>660</b>		<b>782</b>

#### PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
PLANNING	From 3/95 through 2/97 (24 Months)	\$100
DESIGN	From 4/97 thorough 1/98 (10 Months)	\$102
CONSTRUCTION	From 6/98 through 4/99 (10 Months)	\$580
<b>TOTAL</b>		<b>\$782</b>

CONTRACT 105 - FPWWTF  
STORAGE BUILDING AND  
MISCELLANEOUS CSO AND  
OTHER IMPROVEMENTS

**PROJECT DESCRIPTION**

This design and construction project will meet the storage needs at the FPWWTF and make other necessary improvements. The facilities plan amendment recommends the construction of a new building to the southeast of the grit facilities. This building will provide one location to store archived files, maintenance equipment and supplies. Space within the building will also be allocated to provide indoor parking for the scum truck during the winter months. Other improvements to be made at the FPWWTF include replacement of return activated sludge pipe support brackets, repair of the parapet at the Ernest Sreet pump station, painting of the ash crane, installation of a variable frequency drive to operate return sludge pumps, addition of a cyclonic grit separator, filling in of subterranean channels north of aeration tanks and installation of security cameras and improvements to the CSO wet weather facilities.

**PROJECT FINANCING & EXPENDITURES**

(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS		2,500					2,500		2,500
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>0</b>	<b>2,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,500</b>		<b>2,500</b>

**PROJECT COST BY PHASE**

Phase

Project Schedule

Cost By Phase

PLANNING
DESIGN
CONSTRUCTION
<b>TOTAL</b>

Completed as part of Contract 101D
Completed as part of Contract 101C
From 9/97 to 6/98 (9 Months)

<b>\$2,500</b>
<b>\$2,500</b>

LONG TERM SLUDGE  
MANAGEMENT PLAN FOR  
FPWWTF AND BPWWTF

PROJECT DESCRIPTION

Current sludge disposal for the FPWWTF involves incineration of wastewater sludge at Field's Point, with ash disposal at the Central Landfill and/or contract disposal as a backup. The sludge disposal options for Bucklin Point involve contract disposal and/or incineration at Field's Point. Changing regulatory requirements and a lack of back up units are concerns over the long term. This project involves the development of a long term plan for treatment and disposal of sludge from both NBC plants that would provide rate stability while maintaining redundancy and compliance with regulatory requirements.

PROJECT FINANCING & EXPENDITURES  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF			100				100		100
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	0	0	100	0	0	0	100		100

PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
PLANNING	From 7/98 to 12/98 (6 Months)	\$100
DESIGN	To be developed in planning process	
CONSTRUCTION	To be developed in planning process	
TOTAL		\$100

**CONTRACT 803:**

BPWWTF  
SERVICE BUILDING  
IMPROVEMENTS

**PROJECT DESCRIPTION**

The existing building is 40 plus years old and is in need of several improvements in order to continue to be functional. This project would result in a new HVAC system for the building, the construction of locker room space along with showers, sinks, toilets for both men and women in the second floor of the dewatering building that formerly housed vacuum filter equipment. A janitorial closet, laundry facilities and a lunch room are also to be located on the second floor. In addition, this project includes the construction of a paint shop and an electrical shop in the vacant areas of the first floor of the dewatering building. This project was declared substantially completed on February 14, 1997.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS	24						0		24
BAY BONDS							0		0
SRF	560	127					127		687
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>584</b>	<b>127</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>127</b>		<b>711</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	Included as part of design	
DESIGN	From 10/94 to 4/95 (6 Months)	\$24
CONSTRUCTION	From 3/96 to 2/97 (11 Months)	\$687
<b>TOTAL</b>		<b>\$711</b>

CONTRACT 807:

BPWWTF CSO FACILITIES AND  
OTHER  
IMPROVEMENTS

PROJECT DESCRIPTION

A Facilities Plan Amendment (FPA) is being prepared to evaluate improvements needed at the Bucklin Point WWTF to provide wet weather primary capacity of 116 MGD during storms and secondary capacity of 46 MGD over sustained periods of time. Improvements currently proposed in the FPA are: new East Providence Interceptor influent pumping station, new screening and grit handling facilities, new dry weather primary settling tanks, conversion of the existing primary tanks to wet weather treatment, conversion to a fine bubble aeration system, new UV disinfection facilities, new effluent pumping station for dry weather flows, new plant instrumentation and control system. Sludge management proposals involve contract sludge disposal by a vendor, and incineration at Field's Point WWTF.

PROJECT FINANCING & EXPENDITURES  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS		810	525				1,335		1,335
SRF -	378	364	942	9,671	12,895	12,895	36,767	2,149	39,294
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	378	1,174	1,467	9,671	12,895	12,895	38,102	2,149	40,629

PROJECT COST BY PHASE

Phase

Project Schedule

Cost By Phase

PLANNING
DESIGN
CONSTRUCTION
TOTAL

From 12/95 to 7/97 (20 Months)
From 2/98 to 8/99 (18 Months)
From 10/99 to 8/02 (35 Months)

\$378
\$2,641
\$37,610
\$40,629

**CONTRACT 809:**

BPWWTF  
NORTH LANDFILL  
CLOSURE

**PROJECT DESCRIPTION**

In response to capacity limitations and federal regulations, the NBC ceased landfilling sludge at the Bucklin Point North Landfill in February, 1996. This project involves the activities required to permanently close the landfill. Regrading and seeding the site, as required by the landfill closure plan prepared by NBC and approved by RIDEM, was completed in FY 97. Work to be completed in FY 98 includes installing a fence around the site and repair of the plant access road from the north gate to the parking lot.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE						5 YEAR	AFTER FY '02	TOTAL COSTS
	JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	TOTAL		
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRE							0		0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET	450	55					55		505
<b>TOTAL</b>	<b>450</b>	<b>55</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>55</b>		<b>505</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	Performed by NBC staff	
DESIGN	From 5/95 to 11/95 (7 Months)	\$50
CONSTRUCTION	From 2/96 to 12/97 (21 Months)	\$455
<b>TOTAL</b>		<b>\$505</b>



SITE SPECIFIC  
CRITERIA  
EVALUATION  
FOR FIELD'S POINT

PROJECT DESCRIPTION

This project entails the development of site specific criteria in accordance with the Rhode Island Site Specific Criteria Development Policy to evaluate the appropriateness of the criteria used to establish the limitations for metals and other effluent parameters contained in the 1992 permit for the Field's Point Wastewater Treatment Facility. This project is required by the December 15, 1992 RIPDES consent agreement between RIDEM and NBC.

PROJECT FINANCING & EXPENDITURES  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF		300					300		300
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	0	300	0	0	0	0	300		300

PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
STUDY	From 9/97 through 8/98 (12 Months)	\$300
TOTAL		\$300

LABORATORY  
EQUIPMENT:

PURCHASE OF  
INDUCTIVELY  
COUPLED PLASMA  
WITH A  
SPECTRO PHOTOMETER  
(ICP/MS)

PROJECT DESCRIPTION

The continual lowering of metal detection limits by EPA requires the use of highly sensitive instruments. The EPA recommends the use of an ICP/MS for the metal analyses. This instrument has the detection power, sensitivity and elemental coverage to comply with the more stringent EPA regulations.

PROJECT FINANCING & EXPENDITURES  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE					200		200		200
OP. BUDGET							0		0
TOTAL	0	0	0	0	200	0	200		200

PROJECT COST BY PHASE

Phase

Project Schedule

Cost By Phase

PURCHASE

Fiscal Year 2001

\$200

TOTAL

\$200

**SKALAR AUTOMATED  
BOD SYSTEM**

**PROJECT DESCRIPTION**

The purchase of a a Robotic Analyzer will automatically add seed, dilute samples, read oxygen depletions and calculate results, thus minimizing manual errors.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE						5 YEAR	AFTER	TOTAL COSTS
	JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	TOTAL	FY '02	
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE		50					50		50
OP. BUDGET							0		0
<b>TOTAL</b>	<b>0</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>		<b>50</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PURCHASE	Fiscal Year 1998	\$50
<b>TOTAL</b>		<b>\$50</b>

**TRACE METALS  
CLEAN ROOM IN  
EXISTING LAB**

**PROJECT DESCRIPTION**

EPA's discharge limits, especially for metals and organic compounds are getting so low that we are getting down to lower detection limits. The lower the limits, the more likely the chance the laboratory testing environment interferes with the sensitive instrumentation. To avoid contamination of samples, we have to either build a contaminate free room or a new, modern, state-of-the-art laboratory. This project would be for the construction of a trace metal clean room(s) within the existing laboratory in order to achieve compliance with water quality-based limits.

**PROJECT FINANCING & EXPENDITURES  
(Cash Flow Basis in Thousand \$)**

FUNDING SOURCE	BEFORE						5 YEAR AFTER		TOTAL COSTS
	JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	TOTAL	FY '02	
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET		350					350		350
<b>TOTAL</b>	<b>0</b>	<b>350</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>350</b>		<b>350</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING		
DESIGN	6 Months	\$350
CONSTRUCTION		
<b>TOTAL</b>		<b>\$350</b>

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# **SEWER SYSTEM IMPROVEMENTS**

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# SEWER SYSTEM IMPROVEMENTS & MAINTENANCE PROJECTS ...A LISTING

The following is a listing of the 12 Sewer System & Maintenance Projects which have been included in the current Capital Improvement Program. An explanation and cost breakdown of each of these projects is included in this section. The total cost of these projects during this five year period is \$58,488,000

<b>PROPOSED PROJECT</b>	<b>1998-2002</b>
CONTRACT 302: COMPREHENSIVE COMBINED SEWER OVERFLOW PROGRAM	\$ 48,400,000
CONTRACT 302.2: CSO REASSESSMENT	\$ 600,000
CONTRACT 304: EVALUATION AND CLEANING OF CSO INTERCEPTORS	\$ 1,590,000
CONTRACT 305: CSO 2B HEADWALL IMPROVEMENTS	\$ 1,050,000
CSO FLOWMETERS	\$ 52,000
CSO 049 OUTFALL MODIFICATIONS	\$ 750,000
CONTRACT 404: GANO ST. TO PITMAN ST. INTERCEPTOR REPLACEMENT	\$ 10,000
CONTRACT 504: IMPROVEMENTS TO NBC-OWNED INTERCEPTORS IN JOHNSTON	\$ 3,975,000
CONTRACT 701: REPLACEMENT OF THE SAYLESVILLE PUMPING STATION	\$ 611,000
CONTRACT 702: INFILTRATION/INFLOW STUDY: LOUISQUISSET PIKE AREA	\$ 50,000
CONTRACT 902: GEOGRAPHIC INFORMATION SYSTEM IMPLEMENTATION	\$ 1,300,000
INVESTIGATION AND REHAB. OF WASHINGTON HWY AND OMEGA PUMP STATIONS	\$ 100,000
SUBTOTAL	\$ 58,488,000

### PROJECT DESCRIPTION

CONTRACT 302:

COMPREHENSIVE  
COMBINED  
SEWER  
OVERFLOW (CSO)  
PROGRAM

Providence, Pawtucket and Central Falls all have combined sewers which overflow at approximately 84 locations during wet weather. This Comprehensive Combined Sewer Overflow (CSO) program will mitigate the impact of these overflows through the construction of wet weather control facilities. A reassessment of the CSO control program that was approved by DEM in 1994 was completed in August 1997 after a series of 19 meetings in 20 months with a 40 member stakeholder's group. This reassessment has resulted in a proposed modification of the original control program. The new proposed program consists of two tunnels, the main spine (19,000 ft. long) and the Pawtucket tunnel (13,000 ft. long), two sedimentation/disinfection facilities and eleven sewer separation projects at a projected cost of \$389 million. The facilities plan revision to incorporate these changes will be completed in the Spring 1998. Design and construction of the Phase I facilities (the main spine tunnel and pump station estimated at \$165 million) will proceed thereafter and are expected to be completed in about seven years. Upon completion of construction of Phase I, the proposed Phase II facilities will be reassessed to determine if any changes should be made to the plan. Cost estimates for Phase II facilities is \$90 million; for Phase III facilities is \$135 million.

### PROJECT FINANCING & EXPENDITURES (Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	5,000		4,000	4,000	10,000	8,828	26,828		31,828
SRF	11,000					21,572	21,572	141,237	173,809
REVENUE BONDS							0	208,363	208,363
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>16,000</b>	<b>0</b>	<b>4,000</b>	<b>4,000</b>	<b>10,000</b>	<b>30,400</b>	<b>48,400</b>	<b>349,600</b>	<b>414,000</b>

### PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
PLANNING	From 1/92 to 7/93 (10 months)	\$5,000
DESIGN	From 7/93 to 7/00 (96 months)	\$19,000
CONSTRUCTION	From 3/01 to 3/06 (60 months)	\$390,000
<b>TOTAL</b>		<b>\$414,000</b>

CONTRACT 302.2:

COMPREHENSIVE  
COMBINED  
SEWER  
OVERFLOW (CSO)  
PROGRAM

REASSESSMENT

PROJECT DESCRIPTION

Because of the rate impact that the CSO program will have on NBC users and changes that have occurred in the national CSO policy since the 1994 approval of the CSO Abatement Plan, the Commission convened a stakeholders group in early 1996 to review the proposed plan. The Commission is proceeding with investigating alternative, less costly approaches to comply with the new policy through continued meetings with the stakeholders. This process should be completed by August 1997, with the development of a recommendation. Subsequent to that recommendation, the CSO facilities plan will then be revised. Also included in this project is the design of overflow 049 CSO reconstruction.

PROJECT FINANCING & EXPENDITURES

(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	600	600					600		1,200
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	600	600	0	0	0	0	600	0	1,200

PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
PLANNING	From 1/96 to 6/98 (42 months)	\$1,200
TOTAL		\$1,200



#### PROJECT DESCRIPTION

CONTRACT 304:

EVALUATION AND CLEANING  
OF CSO INTERCEPTORS

This project involves the long term ongoing evaluation of interceptor sewers in the Commission's service area to determine their condition and develop solutions to correct any problems that may be identified such as cleaning or repair. Interceptors currently identified as in need of evaluation are: 1) Moshassuck Valley Interceptor; 2) Blackstone Valley Interceptor; and 3) Blackstone Valley Interceptor. Interceptors identified as needing to be cleaned are: 1) Seekonk River Interceptor; 2) Valley Street Interceptor; 3) Elmwood Avenue Interceptor; and 4) Kinsley Avenue Interceptor. The Branch Avenue interceptor in the vicinity of Silver Spring Street has been identified as in need of repair.

#### PROJECT FINANCING & EXPENDITURES (Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT		90					90		90
BVDC BONDS							0		0
BAY BONDS		400	400	300	200	200	1,500		1,500
SRF									0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	0	490	400	300	200	200	1,590		1,590

#### PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
IMPLEMENTATION	From 7/97 to 7/02 (60 Months)	\$1,590
TOTAL		\$1,590

**CONTRACT 305:**

**CSO 2B  
HEADWALL  
IMPROVEMENTS**

**PROJECT DESCRIPTION**

This project includes rebuilding the headwalls for seven (7) outfall pipes along the Woonasquatucket River. Although design was completed five years ago, construction could not start until the Rhode Island Department of Transportation (RIDOT) moratorium on road cuts on Promenade St. expire. It is expected that the moratorium will end by the start date proposed. This will be verified by RIDOT and schedules will be adjusted as appropriate. Prior to bid, design documents must be updated and permits and easements must be obtained.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE						5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
	JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02			
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	140	316	734				1,050		1,190
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>140</b>	<b>316</b>	<b>734</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,050</b>		<b>1,190</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING/DESIGN	From 10/88 to 3/91 (30 Months)	\$132
DESIGN UPDATE	From 7/97 to 11/97 (5 Months)	\$32
CONSTRUCTION	From 4/98 to 10/98 (7 Months)	\$1,050
<b>TOTAL</b>		<b>\$1,214</b>

## CSO FLOWMETERS

### PROJECT DESCRIPTION

This project consists of the purchase and installation of several velocity flow meters and ultrasonic level only flow meters. These meters will be used by NBC staff to conduct a CSO monitoring study over the next several years to evaluate surcharge conditions during wet weather events. When the study is complete, the meters will be installed at permanent metering locations throughout the Field's Point and Bucklin Point service areas.

### PROJECT FINANCING & EXPENDITURES

(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	95	40	12				52		147
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	95	40	12	0	0	0	52		147

### PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
PURCHASE/ INSTALLATION	From 7/95 to 7/99 (48 months)	\$147
TOTAL		\$147

CSO 049

**PROJECT DESCRIPTION**

OUTFALL MODIFICATIONS

During large rainstorms a flooding condition exists on Valley St. near the Moshassuck River. As part of the design phase of the C-East Underground Storage Facility it was determined that this condition could be improved through modifications to the existing sewerage facilities. Design of these modifications will be accomplished through the CSO 302.2. In order to implement the modifications and alleviate the flooding conditions as soon as possible, construction of these improvements will be executed as a separate contract.

**PROJECT FINANCING & EXPENDITURES**

(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS		375	375				750		750
SRF							0		0
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>0</b>	<b>375</b>	<b>375</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>750</b>		<b>750</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	Part of Contract 302	
DESIGN	Part of Contract 302	
CONSTRUCTION	From 4/98 to 9/98 (6 months)	\$750
<b>TOTAL</b>		<b>\$750</b>

CONTRACT 404:

GANO STREET  
TO  
PITMAN STREET  
INTERCEPTOR  
REPLACEMENT

PROJECT DESCRIPTION

Contract 404 is the replacement of approximately 2,285 feet of the 42" interceptor from Gano Street to Pitman Street with a new 42" PCCP interceptor because the existing interceptor has become misaligned both vertically and horizontally over the past 60 years. This project is essentially complete and remaining costs reflect retainage.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE						5 YEAR	AFTER	TOTAL COSTS
	JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	TOTAL	FY '02	
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	866						0		866
SRF	3,630	10					10		3,640
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>4,496</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>		<b>4,506</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	Included as part of CSO A Facilities Plan	
DESIGN	From 1/87 to 3/94 (75 Months)	\$866
CONSTRUCTION	From 3/95 to 1/96 (10 Months)	\$3,640
<b>TOTAL</b>		<b>\$4,506</b>

CONTRACT 504:

IMPROVEMENTS TO  
NBC OWNED  
INTERCEPTORS  
IN JOHNSTON

NORTH END

PROJECT DESCRIPTION

In order to correct capacity problems in the northern portion of the Town of Johnston, the NBC is currently constructing improvements in the interceptor system. These improvements will provide sufficient capacity for future growth in this portion of the Town.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS	120						0		120
SRF	810	2,925	955	95			3,975		4,785
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>930</b>	<b>2,925</b>	<b>955</b>	<b>95</b>	<b>0</b>	<b>0</b>	<b>3,975</b>		<b>4,905</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	Planning included as part of SSES	
DESIGN	From 11/93 to 3/96 (30 Months)	\$865
CONSTRUCTION	From 4/97 to 10/98 (18 Months)	\$4,040
<b>TOTAL</b>		<b>\$4,905</b>

CONTRACT 701:

REPLACEMENT  
OF THE  
LINCOLN (SAYLESVILLE)  
PUMP STATION

PROJECT DESCRIPTION

An evaluation of the existing package type pumping station in Saylesville was undertaken as part of Contract 103. It was determined that the existing pumping station has size limitations in both the wet well and the dry pit. A new pumping station is necessary in order to provide firm capacity and reliable operation for future flows.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS	151						0		151
BAY BONDS							0		0
SRF	780	581	30				611		1,391
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>931</b>	<b>581</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>611</b>		<b>1,542</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	Prior to 7/95	\$151
DESIGN	From 11/94 to 9/95 (11 Months)	\$195
CONSTRUCTION	From 11/96 to 4/98 (17 Months)	\$1,196
<b>TOTAL</b>		<b>\$1,542</b>

CONTRACT: 702

INFILTRATION/INFLOW  
STUDY

LOUISQUISSETT  
PIKE AREA

**PROJECT DESCRIPTION**

NBC's Interceptor Construction and Maintenance section has reported high flow levels and root problems in the Louisquisset Pike area of Lincoln. This project is comprised of an infiltration/inflow study and an evaluation of the sewer repair or rehabilitation.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF		10	40				50		50
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	0	10	40	0	0	0	50		50

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	From 5/98 to 1/99 (9Months)	\$50
TOTAL		\$50



CONTRACT 902:

PROJECT DESCRIPTION

GEOGRAPHIC INFORMATION  
SYSTEM (GIS)  
IMPLEMENTATION

The NBC has completed a study to implement a Geographic Information System (GIS) program. This GIS would allow the NBC to geographically relate and maintain databases on its sewer system and pretreatment programs. The project includes data conversion, data development and acquisition of additional hardware and software. This would be a long term project requiring annual updating subsequent to the initial data acquisition.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF	89	400	300	300	300		1,300		1,389
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
<b>TOTAL</b>	<b>89</b>	<b>400</b>	<b>300</b>	<b>300</b>	<b>300</b>	<b>0</b>	<b>1,300</b>		<b>1,389</b>

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	From 10/95 to 5/96 (8 months)	\$89
IMPLEMENTATION	From 10/97 to 10/00 (36 months)	\$1,300
<b>TOTAL</b>		<b>\$1,389</b>

INVESTIGATION AND  
REHABILITATION OF  
WASHINGTON HIGHWAY AND  
OMEGA PUMP STATIONS

PROJECT DESCRIPTION

The Washington Highway and Omega Pump Stations in the Bucklin Point Service area are both older pump stations nearing the end of their design life. This project involves a study of the stations to determine if any rehabilitation or improvements need to be made at this time. Depending on the outcome of this investigation, design and construction phases may follow.

**PROJECT FINANCING & EXPENDITURES**  
(Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT									0
BVDC BONDS									0
BAY BONDS							0		0
SRF		100					100		100
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	0	100	0	0	0	0	100		100

**PROJECT COST BY PHASE**

Phase	Project Schedule	Cost By Phase
PLANNING	From 7/98 to 2/99 (8 Months)	\$100
DESIGN		
CONSTRUCTION		
TOTAL		\$100

**BUILDINGS  
AND GROUNDS PROJECTS  
...A LISTING**

The following is a listing of the 2 Buildings and Grounds Projects which  
have been included in the current Capital Improvement Program.  
An explanation and cost breakdown of each of these projects  
is included in this section. The total cost of these  
projects during this five year period is  
\$1,127,000

<b>PROPOSED PROJECT</b>	<b>1998-2002</b>
REHABILITATION OF 459 PROMENADE STREET BUILDING	\$ 517,000
VEHICLE REPLACEMENTS	\$ 610,000
SUBTOTAL	\$ 1,127,000

IMPROVEMENT TO NBC  
OWNED PROPERTY LOCATED  
AT 459 PROMENADE STREET

REHABILITATION OF 459  
PROMENADE STREET BUILDING

#### PROJECT DESCRIPTION

This project involves the replacement of windows and the upgrading of electrical, heating and plumbing systems to meet current building codes. This project will also include the construction of additional office space to accomodate staff presently located in other buildings and provide handicap accessibility to all areas of the building.

#### PROJECT FINANCING & EXPENDITURES (Cash Flow Basis in Thousand \$)

FUNDING SOURCE	BEFORE JULY '97	FY '98	FY '99	FY '00	FY '01	FY '02	5 YEAR TOTAL	AFTER FY '02	TOTAL COSTS
GRANT							0		0
BVDC BONDS							0		0
BAY BONDS							0		0
SRF		327	190				517		517
REVENUE BONDS							0		0
REP. RESERVE							0		0
OP. BUDGET							0		0
TOTAL	0	327	190	0	0	0	517		517

#### PROJECT COST BY PHASE

Phase	Project Schedule	Cost By Phase
PLANNING	From 9/97 to 1/98 (5 months)	\$27
DESIGN	From 2/98 to 5/98 (4 month)	\$40
CONSTRUCTION	From 5/98 to 5/99 ( 12 months)	\$450
TOTAL		\$517

# VEHICLE REPLACEMENT SCHEDULE

( In Thousand \$'s)

All Items are to be funded from the Replacement Reserve

	FY '98	FY '99	FY '00	FY '01	FY '02
1984 Sewer Bucket Cleaning Machine			80		
1984 Digger Truck (Unit 12)		80			
10 Wheeler (Unit 10)				70	
1985 City Suburban (Unit 14)			30		
1989 Vactor Truck (Unit 17)		175			
1989 Iveco Utility Van (Unit 16)	25				
1985 Chevy Pickup (Unit 13)	25				
Video Inspection (TV) Utility Truck					100
1990 Station Wagon			25		
1989 Van (Unit 30)			25		
Total	50	255	135	70	100

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**SECTION III**  
**APPENDIX**

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**THE NARRAGANSETT BAY COMMISSION**  
**ABBREVIATIONS & ACRONYMS**  
**FOR THE 1998-2002 CIP**

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Average Daily Flow	ADF
Buildings and Grounds	BG
Bucklin Point Wastewater Treatment Facility	BPWWTF
Blackstone Valley District Commission	BVDC
Blackstone Valley Interceptor	BVI
Capital Improvement Plan	CIP
Combined Sewer Overflow	CSO
Department of Environmental Management (Rhode Island)	DEM
Environmental Protection Agency (United States)	EPA
Ernest Street Pumping Station	ESPS
Field's Point Wastewater Treatment Facility	FPWWTF
General Obligation Bonds (issued by The State of Rhode Island)	G.O./g.o.
Geographic Information System	GIS
Inductively Coupled Plasma w/Mass Spectro Photometer	ICP/MS
Interceptor Construction & Maintenance (Narragansett Bay Commission)	ICM
Linear Feet	LF
Million Gallons per Day	MGD/mgd
Moshassuck Valley Interceptor	MVI
Narragansett Bay Water Quality Management District Commission	NBC
National Pollution Discharge Elimination System	NPDES
Out Fall	OF
Operating (to modify "budget")	OP/Oper.
Public Utilities Commission (Rhode Island)	PUC
Replacement (used with "Reserve Fund")	REP./REPL.
Revenues (used with "Bonds")	REV.
Rhode Island Department of Environmental Management	RIDEM
Rhode Island Pollution Discharge Elimination System	RIPDES
State Revolving Fund (Rhode Island)	SRF
Wastewater Treatment Facility	WWTF

## **NARRAGANSETT BAY COMMISSION FACILITIES**

### ***NBC Field's Point Service Area Facilities***

The FPWWTF can provide secondary treatment to average dry weather flows of 65 million gallons per day (mgd), sustained wet weather flows of 77 mgd, and peak hourly flows of 91 mgd. Wet weather facilities provide primary treatment and disinfection for stormwater flows of up to 123 mgd beyond the primary and secondary process systems' capacity. Total treatment capacity at the Field's Point facility is 200 mgd.

The Field's Point facility uses an activated sludge process for secondary treatment, incorporating grit removal, primary sedimentation, secondary aeration, final clarification and chlorination for disinfection in the overall treatment process. Final effluent discharge is to the Providence River. The majority of the flow is pumped to the treatment facility by the Ernest Street Pumping Station (ESPS).

Sludge is processed through gravity thickeners and then to two 2-meter Parkson Magnum 3000 belt filter presses which went on-line in mid June, 1988. Sludge is then conveyed to a Nichols nine-hearth sludge incinerator (16 feet diameter, 10 wet ton/hour maximum capacity). The resulting ash from the incinerator is conveyed in a wet state to ash settling tanks. The settled ash is then landfilled.

The Field's Point service area operates and maintains five outlying pump stations. The Washington Park and Reservoir Ave. pump stations located within the City of Providence have recently completed construction improvements. There are three additional pump stations in Johnston. The newest, Central Avenue, came on-line in 1987.

The Field's Point service area has several flow metering stations that are used to measure flows from the various service areas. These meters are read weekly.

In addition, the Field's Point service area owns and is responsible for the maintenance and correction of 57 Combined Sewer Overflows (CSO's), 32 tidegates and 68 miles of interceptors.



### ***NBC Bucklin Point Service Area Facilities***

The NBC assumed ownership of the Bucklin Point Wastewater Treatment Facility (BPWWTF) in 1992 from the Blackstone Valley District Commission (BVDC) which was established by the Rhode Island General Assembly in 1947 to plan, design, construct and operate and maintain facilities for the abatement of pollution generated from wastewater. Rhode Island voters also granted BVDC the ability to use state issued (but BVDC retired) bonds. The Bucklin Point wastewater treatment plant, providing primary treatment, began operating in 1952. The plant was upgraded to secondary treatment in 1973.

The BPWWTF can provide maximum secondary treatment to 46 mgd and primary treatment for flows up to 60 mgd.

Wastewater treated at the Bucklin Point Facility first flows through mechanically cleaned screens, grit chambers, a pre-aeration channel, two primary settling tanks and then flows into aeration basins where it receives secondary treatment through the use of activated sludge technology. The activated sludge and the wastewater then flow to six final settling tanks. The effluent from the final settling tanks flows to the chlorine contact tank for disinfection. The treated effluent is discharged to the Seekonk River.

Waste sludge from the activated sludge process is pumped to the flotation thickener where it is thickened with the aid of chemicals and is then pumped to one of the digesters. The sludge is anaerobically digested and methane gas and carbon dioxide are produced as part of this process. The methane is used to heat the digesters and plant buildings. In accordance with Federal Regulations, sludge disposal at the landfill has been ceased and the landfill is in the process of being closed. NETCO presently dewateres and disposes of the sludge in out-of-state landfills.

NBC also owns and operates three pump stations within the service area, the Omega (East Providence) Pump Station, the Saylesville (Lincoln) Pump Station and the Washington Highway Pump Station in Lincoln.

NBC is also responsible for five interceptors in the BPWWTF service area: the Blackstone Valley, Washington Highway, Moshassuck Valley, Abbott Run and East Providence. The total length of the interceptors is approximately 28 miles.

In addition, legislation passed by the Rhode Island General Assembly in 1989 assigned responsibility for the 27 CSO's in Pawtucket and Central Falls to BVDC in addition to the BVDC's North Diversion Structure located at Bucklin Point.

**PUBLIC REVIEW PROCESS  
WITH  
PUBLIC COMMENTS  
AND RESPONSES**

In July 1997 the Draft CIP was distributed to the Board of Commissioners.

A display advertisement for a public hearing on the Capital Improvement Program (CIP) was published in the Providence Journal Bulletin (see following page). The CIP Public Hearing was held on August 19, 1997 at 7:00 p.m. at the Narragansett Bay Commission Corporate Office, 235 Promenade Street, Suite 500. At the hearing it was noted that public comments would be accepted until August 22, 1997. Any written comments received from this Public Hearing have been included in the following pages along with the written responses from the Commission. Where applicable, comments/suggestions were incorporated into the CIP.

On August 13, 1997, the Draft CIP was presented to the Citizen's Advisory Committee.

On August 14, 1997, the Citizen's Advisory Committee commented on the Draft CIP.

On September 29, 1997, the Final Draft CIP was adopted by the Board of Commissioners.

## Public Hearing

### **The Narragansett Bay Commission**

invites the public to attend a Public Hearing on its

#### **Capital Improvement Program for Fiscal Years 1998 - 2002**

on

Tuesday, August 19, 1997 • 7:00 p.m.

at

The Narragansett Bay Commission Office\*  
235 Promenade Street, Suite 500, Providence, RI

At the hearing, the NBC will give the public an overview of its Capital Improvement Program (CIP) for fiscal years 1998-2002. The CIP is a planning document identifying over \$162 million in projects, repairs and purchases anticipated over the next five years. Testimony will be taken from the public following the presentation. For more information, contact Jackie Saul at (401) 277-6680/TDD (401) 277-6680.

\*The meeting site is accessible. Individuals requesting interpreter services must notify the NBC at 277-6680/TDD 277-6680 72 hours in advance of the meeting date.

Rep. Vincent Mesolella, Chairman

Paul Pinault, P.E., Executive Director



**CITIZEN'S ADVISORY COMMITTEE  
TO THE  
NARRAGANSETT BAY COMMISSION**

August 14, 1997

Mr. Paul Pinault, Executive Director  
Narragansett Bay Commission  
459 Promenade Street  
Providence, RI 02908

**RE: CAPITAL IMPROVEMENT PROGRAM (CIP) FY 1998-2002 FOR THE  
NARRAGANSETT BAY WATER QUALITY MANAGEMENT DISTRICT  
COMMISSION**

The Citizens's Advisory Committee (CAC) to the Narragansett Bay Commission has authorized me to submit a Statement commending the NBC Staff on their Draft of the Capital Improvement Program for the FY-1998-2002 for the Narragansett Bay Water Quality Management District Commission.

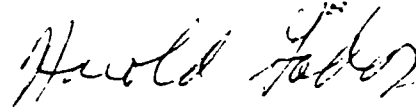
The Citizens Advisory Committee had the privilege of having draft copies to study and a comprehensive presentation of the Draft by NBC Staff person, Ms. Jacqueline Saul, that enabled us to draw our positive conclusions. In so doing, we unanimously agreed that the CIP Draft, was not only an extremely thorough presentation that covered every projected capital project, but also, was set forth with clarity and the kind of logical organization so needed for this type of documentation on behalf of NBC Sewer users and the general public

We approve of the Capital Improvement Program draft as submitted with an added commitment to further support the review process currently underway as part of the CSO "stakeholders" meetings. Since the CSO Abatement Plan represents 60% of the total cost of the CIP we feel that every effort must be made to achieve less costly options and our committee is involved in the review of the alternate plans for that abatement project.

We realize that a Federal Mandate created the need for the CSO plan so our support is there, however, because of the rate impact on the users represented within our committee our goal is to strenuously seek less costly approaches to achieve compliance with the new policy.

We are hopeful and confident that the NBC Board of Commissions will agree with our assessment of this Draft and forward their approval with a minimum amount of deliberation.

Respectfully Submitted  
On behalf of the  
**CITIZENS'S ADVISORY COMMITTEE**

A handwritten signature in cursive script, appearing to read "Harold Gadon".

**HAROLD GADON**  
**CHAIRMAN**

cc: Jacqueline Saul



# NARRAGANSETT BAY COMMISSION

## EXISTING DEBT SERVICE FOR CAPITAL PROJECTS (BASED ON ACTUAL PAYMENT SCHEDULES)

			FY '98	FY '99	FY '00	FY '01	FY '02
\$1.4 M	State/G.O.'s	Principal	8,110	16,219	33,959	145,973	163,916
		Interest	52,194	51,748	50,823	48,853	40,241
		Subtotal	60,304	67,967	84,782	194,826	204,157
1987 Bonds Refunded 5/92 (\$6M)	State/G.O.'s	Principal	11,898	23,797	47,594	47,594	259,092
		Interest	163,698	163,044	161,687	158,927	156,119
		Subtotal	175,596	186,841	209,282	206,521	415,210
1984 Bonds (\$3M)	State/G.O.'s	Principal	15,000	15,000	15,000	15,000	15,000
		Interest	6,165	5,175	4,170	3,150	2,115
		Subtotal	21,165	20,175	19,170	18,150	17,115
1988 Bonds (\$5.5M)	State/G.O.'s	Principal	175,000	175,000	175,000	175,000	175,000
		Interest	141,050	128,975	116,725	104,300	91,700
		Subtotal	316,050	303,975	291,725	279,300	266,700
1986 Bonds City of Providence		Principal	383,010	375,647	366,974	357,812	0
		Interest	100,090	74,812	49,642	24,689	0
		Subtotal	483,100	450,459	416,616	382,501	0
Promenade St. Property		Principal	79,608	87,944	97,153	107,326	118,564
		Interest	21,392	13,056	11,294	5,928	5,928
		Subtotal	101,000	101,000	108,447	113,254	124,492
1991 Bonds \$21.55 M GOB's	State/G.O.'s	Principal	282,991	275,092	276,796	278,660	280,085
		Interest	210,661	193,659	177,162	160,575	143,907
		Subtotal	493,652	468,751	453,958	439,235	423,992

**NARRAGANSETT BAY COMMISSION**

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			<b>FY '98</b>	<b>FY '99</b>	<b>FY '00</b>	<b>FY '01</b>	<b>FY '02</b>
Contract 401-Butler	SRF	Principal	66,303	68,799	71,389	74,076	76,865
		Interest	52,208	49,665	47,026	44,289	41,447
		Subtotal	118,511	118,464	118,415	118,365	118,312
Contract 601-North Prov.	SRF	Principal	109,848	113,940	118,185	122,587	127,153
		Interest	78,234	74,065	69,742	65,258	60,606
		Subtotal	188,082	188,005	187,927	187,845	187,760
Contract 201-Wash. Park	SRF	Principal	144,480	149,587	154,875	160,349	166,017
		Interest	113,177	108,006	79,652	97,109	91,370
		Subtotal	257,657	257,593	234,527	257,458	257,387
Pool Financing I	SRF	Principal	531,500	551,250	571,500	592,500	614,500
		Interest	513,776	493,912	473,314	451,959	429,816
		Subtotal	1,045,276	1,045,162	1,044,814	1,044,459	1,044,316
Pool Financing II	SRF	Principal	628,866	650,948	673,805	697,465	721,955
		Interest	572,705	546,397	523,255	499,300	474,504
		Subtotal	1,201,571	1,197,345	1,197,060	1,196,765	1,196,459
8/6/92 Issue \$100,000	State/G.O.'s	Principal	5,000	5,000	5,000	5,000	5,000
		Interest	4,350	3,950	3,585	3,295	3,045
		Subtotal	9,350	8,950	8,585	8,295	8,045
8/6/92 Issue \$3,315,000	State/G.O.'s	Principal	110,000	120,000	125,000	135,000	140,000
		Interest	157,980	148,780	139,855	132,355	125,480
		Subtotal	267,980	268,780	264,855	267,355	265,480
5/15/92 Issue \$1,270,364.15	State/G.O.'s	Principal	62,745	125,490	247,619	0	0
		Interest	24,966	21,515	14,362	0	0
		Subtotal	87,711	147,005	261,981	0	0



# NARRAGANSETT BAY COMMISSION

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			FY '98	FY '99	FY '00	FY '01	FY '02
5/15/92 Issue \$7,731,583.1	State/G.O.'s	Principal	32,789	65,577	131,155	131,155	713,975
		Interest	451,100	449,296	445,558	437,951	430,213
		Subtotal	483,888	514,874	576,713	569,106	1,144,188
6/15/88 Issue \$4,770,000	State/G.O.'s	Principal	415,000	390,000	420,000	415,000	435,000
		Interest	156,085	130,555	113,395	94,075	74,570
		Subtotal	571,085	520,555	533,395	509,075	509,570
8/1/90 Issue \$200,000	State/G.O.'s	Principal	200,000	0	0	0	0
		Interest	6,500	0	0	0	0
		Subtotal	206,500	0	0	0	0
10/15/91 Issue \$900,000	State/G.O.'s	Principal	50,548	50,941	51,256	51,600	51,864
		Interest	38,892	35,855	32,800	29,728	26,642
		Subtotal	89,440	86,796	84,056	81,328	78,506
Pool Loan Financing III	SRF	Principal	0	0	0	283,397	293,778
		Interest	0	149,155	245,084	291,881	281,413
		Subtotal	0	149,155	245,084	575,278	575,191
		TOTALS					
		Principal	3,312,696	3,260,231	3,582,260	3,795,494	4,357,763
		Interest	2,865,223	2,841,620	2,759,132	2,653,622	2,479,116
		Grand Total Existing	6,177,918	6,101,851	6,341,392	6,449,116	6,836,880

# NARRAGANSETT BAY COMMISSION

## NEW BAY BOND FINANCING FOR CAPITAL PROJECTS

ASSUMPTIONS: 7.00% INTEREST, 20 YEAR FINANCING

		FY '98	FY '99	FY '00	FY '01	FY '02
FY 98 NEW BAY BONDS	Principal	0	0	0	0	0
	Interest	0	0	0	0	0
	Subtotal	0	0	0	0	0
FY 99 NEW BAY BONDS	Principal	28,700	28,700	28,700	28,700	28,700
\$574,000	Interest	40,180	38,171	36,162	34,153	32,144
	Subtotal	68,880	66,871	64,862	62,853	60,844
FY 00 NEW BAY BONDS	Principal	0	0	0	0	0
	Interest	0	0	0	0	0
	Subtotal	0	0	0	0	0
FY 01 NEW BAY BONDS	Principal					
	Interest					
	Subtotal	0	0	0	0	0
FY 02 NEW BAY BONDS	Principal					
	Interest					
	Subtotal	0	0	0	0	0
	Totals					
	Principal	28,700	28,700	28,700	28,700	28,700
	Interest	40,180	38,171	36,162	34,153	32,144
	Total Bay Bonds	68,880	66,871	64,862	62,853	60,844

**NARRAGANSETT BAY COMMISSION**  
**NEW SRF BOND FINANCING FOR CAPITAL PROJECTS**

ASSUMPTIONS: 4.7% INTEREST, 20 YEAR FINANCING  
INCLUDES FINANCING COSTS OF 7%

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		FY '98	FY '99	FY '00	FY '01	FY '02
FY 98 NEW SRF	\$1,133,000 Principal	56,650	56,650	56,650	56,650	56,650
	Interest	50,588	47,926	45,263	42,601	39,938
	Subtotal	107,238	104,576	101,913	99,251	96,588
FY 99 NEW SRF	\$3,935,000 Principal		196,750	196,750	196,750	196,750
	Interest		184,945	175,698	166,451	157,203
	Subtotal		381,695	372,448	363,201	353,953
FY 00 NEW SRF	\$17,185,000 Principal			859,250	859,250	859,250
	Interest			807,695	767,310	726,926
	Subtotal			1,666,945	1,626,560	1,586,176
FY 01 NEW SRF	\$18,339,000 Principal				916,950	916,950
	Interest				861,933	818,836
	Subtotal				1,778,883	1,735,786
FY 02 NEW SRF	\$36,880,000 Principal					1,844,000
	Interest					1,733,360
	Subtotal					3,577,360
	Totals					
	Principal	56,650	253,400	1,112,650	2,029,600	3,873,600
	Interest	50,588	232,871	1,028,656	1,838,295	3,476,263
	Total New SRF	107,238	486,271	2,141,306	3,867,895	7,349,863

# NARRAGANSETT BAY COMMISSION

## SUMMARY OF ALL DEBT SERVICE SCHEDULES

		FY '98	FY '99	FY '00	FY '01	FY '02
<b>EXISTING DEBT SERVICE</b>	Principal	3,312,696	3,260,231	3,582,260	3,795,494	4,357,763
	Interest	2,865,223	2,841,620	2,759,132	2,653,622	2,479,116
<b>NEW BAY BONDS</b>	Principal	28,700	28,700	28,700	28,700	28,700
	Interest	40,180	38,171	36,162	34,153	32,144
<b>NEW SRF BONDS</b>	Principal	56,650	253,400	1,112,650	2,029,600	3,873,600
	Interest	50,588	232,871	1,028,656	1,838,295	3,476,263
<b>TOTAL</b>	Principal	3,398,046	3,542,331	4,723,610	5,853,794	8,260,063
	Interest	2,955,991	3,112,662	3,823,950	4,526,069	5,987,524
	Grand Total	6,354,037	6,654,993	8,547,560	10,379,864	14,247,587