

CAPITAL IMPROVEMENT PROGRAM FY 2017-2021



Narragansett Bay Commission

Capital Project Summary for Fiscal Years 2017-2021 (In Thousands)

Page Number	Project Number	Project Name	Fiscal Years 2017-2021
Wastewater Treatment Facility Improvements			
4	10908C	FPWWTF Blower Improvements Phase II - Construction	\$ 2,326
6	11900C	Regulatory Compliance Building Construction	90
7	12000C	BPWWTF - Biogas Reuse - Construction	6,399
8	12400D	New IM Facilities - Design	555
8	12400C	New IM Facilities - Construction	6,052
9	12700C	FPWWTF Electrical Substation No. 2 - Construction	7
10	12800C	BPWWTF Solar Energy - Construction	7,263
11	12900D	FPWWTF- Operations and Lab Building Reuse - Design	326
11	12900C	FPWWTF- Operations and Lab Building Reuse - Construction	976
12	13000C	FPWWTF Final Clarifier Improvements - Construction	2,673
14	81000D	BPWWTF UV Disinfection Improvements - Design	105
15	81300C	BPWWTF Flood Protection	1,277
<i>Subtotal - Wastewater Treatment Facility Improvements</i>			<u>\$ 28,048</u>
Infrastructure Management			
16	1100000	Site Specific Study	\$ 245
18	1140200	Receiving Water Compliance Study	300
19	1140300	Green House Gas Study	130
20	30438C	Interceptor Easements (AVI) - Construction	360
21	30500D	NBC Interceptor Easements (Various Locations) - Design	722
21	30500C	NBC Interceptor Easements (Various Locations) - Construction	632
22	30501C	NBC Interceptor Easements (BVI) - Construction	726
23	30700D	NBC System-wide Facilities Planning	466
24	40100P	NBC Facility Electrical Improvements- Planning	126
25	40200D	NBC System-Wide Inflow Reduction-Design	330
25	40200C	NBC System-Wide Inflow Reduction-Construction	551
26	40300P	Municipal Lateral Sewer Acquisition Impact	296
<i>Subtotal - Infrastructure Management</i>			<u>\$ 4,884</u>
Phase III CSO Facilities			
35	30800D	Phase III CSO Facilities - Design	\$ 37,772
35	30800C	Phase III CSO Facilities - Construction	66,540
<i>Subtotal - Phase III CSO Facilities</i>			<u>\$ 104,312</u>
CSO Interceptor Inspection & Cleaning			
37	30400M	Inspection and Cleaning of CSO Interceptors	\$ 2,500
<i>Subtotal - CSO Interceptor Inspection & Cleaning</i>			<u>\$ 2,500</u>
CSO Interceptor Repair & Construction			
38	30400C	Repair and Construction of CSO Interceptors	\$ 1,500
39	30421C	Louisquisset Pike Interceptor Replacement - Construction	1,759
40	30444C	Moshassuck Valley Interceptor - Construction	3,128
41	30457C	Providence River Siphon Replacement - Construction	778
42	30458P	Douglas/Branch Avenue Interceptor Relief - Planning	69
42	30458D	Douglas/Branch Avenue Interceptor Relief - Design	677
42	30458C	Douglas/Branch Avenue Interceptor Relief - Construction	6,283
43	30459C	Improvements to Interceptors FY 2015	5
44	30462C	Improvements to Interceptors FY 2016	1,323
<i>Subtotal - CSO Interceptor Repair & Construction</i>			<u>\$ 15,522</u>
Total Capital Improvement Program FY 2017-2021			<u><u>\$ 155,267</u></u>

Capital Improvement Program

The Capital Improvement Program

The Narragansett Bay Commission’s (NBC) Capital Improvement Program (CIP) identifies programmed capital investments necessary to comply with current and future regulatory requirements, take advantage of technological advancements and ensure the integrity of NBC’s infrastructure. The projects, schedules and costs that are included in the CIP have been developed through a planning process that involves NBC’s Engineering and Construction staff and also incorporates the needs identified through NBC’s asset management program. These capital improvements represent projects with costs greater than \$75,000 and are for new facilities as well as the repair and replacement of existing infrastructure. The CIP shows programmed expenditures for fiscal year (FY) 2016 as well as the five-year period of fiscal years 2017-2021, which is referred to in this document as the “window.” Structuring the CIP this way also enables NBC’s program to be easily incorporated into the capital budget of the State of Rhode Island.

Capital Improvement Program Overview

This year’s CIP identifies a total of 60 projects that are either in progress, to be initiated or to be completed during the window.

The estimated costs for this year’s CIP window are \$155.3 million with additional capital expenditures projected to be \$33.6 million in FY 2016 for a total of \$188.9 million during FY 2016-2021. The majority of the costs are related to the Combined Sewer Overflow (CSO) Phase III Facilities, the CSO Interceptor Repair and Construction projects including the Moshassuck Valley and Douglas/Branch Avenue Interceptors; and the Regulatory Compliance Building. In accordance with the Consent Agreement between NBC and the Rhode Island Department of Environmental Management (RIDEM), preliminary design of the federally mandated CSO Phase III facilities must be completed within one year of completing construction of the CSO Phase II Facilities. For planning purposes, the programmed expenditures are classified into cost categories, as shown in the following table.

FY 2017-2021 CIP Costs by Category
(In thousands)

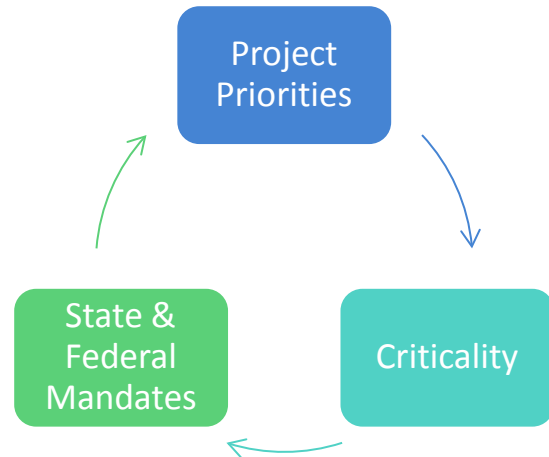
Category	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2017-2021	FY 2016-2021
Administrative	\$ 1,662	\$ 1,307	\$ 537	\$ 928	\$ 767	\$ 569	\$ 4,108	\$ 5,770
Land	522	-	-	200	4,000	-	4,200	4,722
A/E Professional	3,720	13,837	10,096	11,825	1,267	8,279	45,304	49,024
Construction	20,299	21,178	2,811	6,184	3,893	60,622	94,689	114,987
Contingency	4,915	3,022	444	66	675	660	4,867	9,782
Other	2,523	849	483	436	159	174	2,100	4,623
Total	\$ 33,641	\$ 40,193	\$ 14,371	\$ 19,639	\$ 10,760	\$ 70,304	\$ 155,267	\$ 188,908

Capital Improvement Program Development

NBC’s comprehensive capital improvement planning process incorporates the project’s relationship to the strategic plan, program priorities, the permitting process, construction management availability, seasonal considerations, scheduling and other factors.

The CIP drives NBC’s long-term financing requirements, and therefore the particulars of each project are an essential component of NBC’s financial plan. NBC’s capital expenditures are expected to decline primarily due to the completion of construction of CSO Phase II contracts and the Biological Nutrient Removal (BNR) project at Field’s Point and Bucklin Point.

NBC’s Project Managers begin the annual CIP process with the development of detailed justifications for each capital project including project scope, basis of the cost estimate and key factors impacting costs and schedules. The Project Managers also explain modifications from the prior year’s CIP and the overall project timeline. A chart illustrating the detailed project scheduling can be found in the Appendix. A CIP Review Committee reviews the proposed capital project expenditures. Projects approved for inclusion in the CIP are subsequently analyzed to assess major program changes, overall capital funding needs and the strength of the project’s connection to the objectives in NBC’s Strategic Plan.



As part of the CIP program development, the criticality of each project is assessed and a priority ranking is assigned based on that assessment. Projects with an “A” ranking are the most critical and are either mandated or currently under construction. Approximately 69% of the projects identified in the window are prioritized with an “A” ranking and total \$106.6 million.

In addition, 12% or \$18.9 million of projects are identified with a “B” ranking, which includes projects that are imperative to NBC’s ongoing operations. Finally 19%, or approximately \$29.8 million of the capital expenditures, are ranked as “C”, which includes projects which are important but not critical to ongoing operations. The following table outlines the programmed expenditures according to the three priority ranking throughout the CIP window.

Estimated Costs by Project Priority

(In thousands)

Project Priority	Fiscal Year 2017	Fiscal Year 2018	Fiscal Year 2019	Fiscal Year 2020	Fiscal Year 2021	Fiscal Years 2017-2021	Ranking Percentage
A	\$ 13,566	\$ 9,677	\$ 12,193	\$ 5,619	\$ 65,501	\$ 106,556	69%
B	5,414	3,061	1,700	3,953	4,753	18,880	12%
C	21,213	1,634	5,746	1,189	4,878	29,831	19%
Total	\$ 40,193	\$ 14,371	\$ 19,639	\$ 10,760	\$ 75,131	\$ 155,267	100%

Capital Improvement Program Assumptions

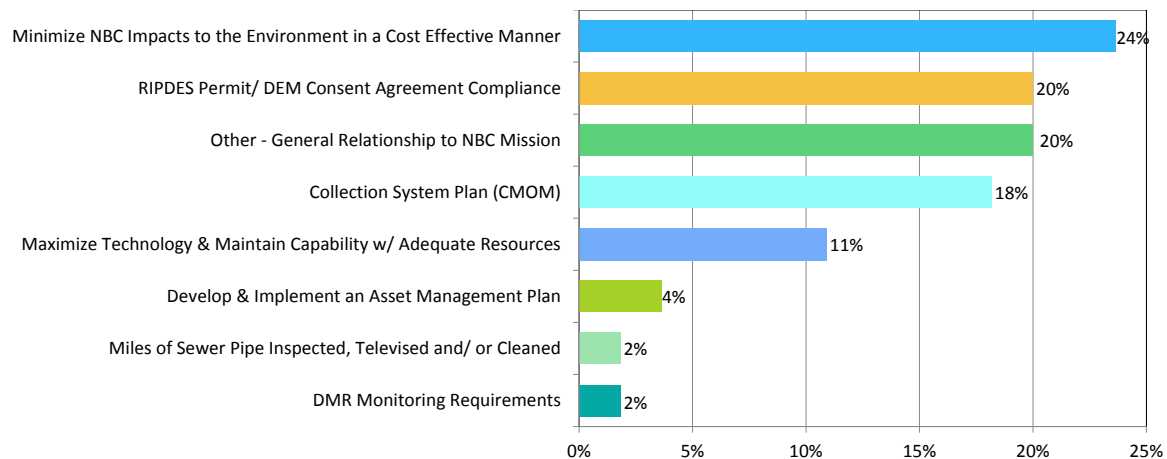
The cost estimates in this CIP are based on a number of assumptions as follows:

- Costs and cash flows are based on engineering estimates as well as bid amounts, once they become available.
- The CIP does not include the operating capital outlay expenses for the acquisition or replacement of long term assets required on an annual basis. These expenses are identified in NBC’s annual operating budget and are outlined in the five-year Operating Capital Outlay Plan.
- The majority of construction projects include a 12% contingency based on the original construction cost estimate, which reflects recent industry experience related to construction cost factors and may be modified upon receipt of bids. The cost estimates for future design projects includes a 7% allowance for salary and fringe associated with project management, based on historical data.
- Financing costs and debt service associated with new debt for the CIP Program are not included in the CIP expenditures or the project cash flows. Financing costs are capitalized and amortized over the length of the debt payment schedule and debt service is included as an expense in the annual operating budget.

Capital Projects by Strategic Objective

NBC’s Strategic Plan ensures NBC’s ability to meet water quality objectives set forth by regulatory requirements through achieving short term and long term objectives. As part of the CIP development process, Project Managers determine the strategic goals that the project will address. Projects may be aligned with more than one objective as the project may address multiple needs.

Percentage of Capital Projects by Strategic Objective



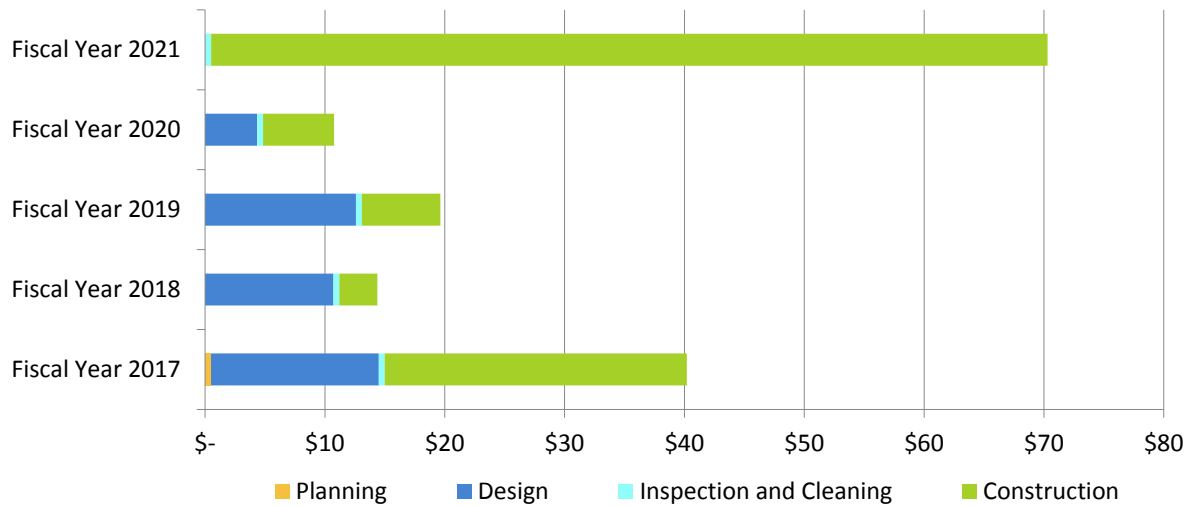
Of the 60 CIP projects, 24% are related to Minimizing NBC Impacts to the Environment in a Cost Effective Manner such as the Green House Gas Study and Solar Energy project. Projects related to the RIPDES Permit/DEM Consent Agreement Compliance Objective represent 20% of the total and include the CSO Phase II and Phase III Facilities and Nitrogen Removal. Overall, 20% of the projects have a General Relationship to NBC’s Mission such as the Regulatory Compliance Building and Wastewater Treatment Facility Improvements. In addition, 18% are related to the Collection System Plan Objective which includes capacity management and operation and maintenance of NBC’s collection and treatment system. The previous chart illustrates the percentage of capital projects aligned with each Strategic Objective.

Capital Expenditure by Phase

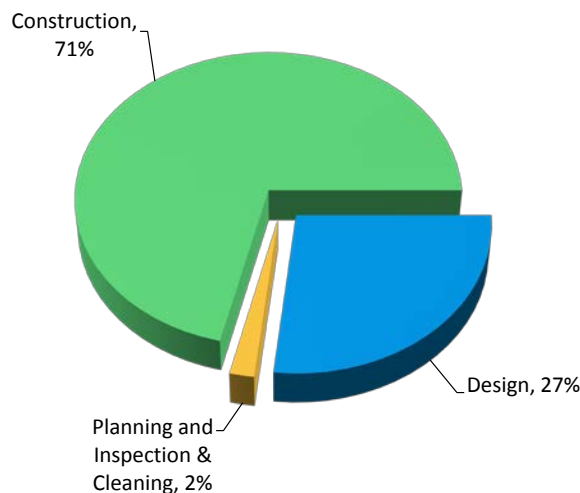
NBC's large construction projects are delineated by three phases: planning, design and construction. Planning consists of tasks such as feasibility studies and determination of the technology to be implemented. The design phase includes the development of all plans and specifications, acquisition of easements and permits. During the construction phase, facility improvements and infrastructure are constructed. In FY 2021, construction of the CSO Phase III Facilities accounts for 94% of the total construction expenditures.

The CIP also includes some programmed capital projects which are not broken down into phases, since they deal with the inspection, cleaning and repair of NBC's miles of interceptors, or other one-time special studies to maintain the integrity of the NBC's treatment and collection system.

Expenditures by Project Phase
(In millions)



The graph below illustrates the programmed capital expenditures by project phase. The construction phase has the largest amount of expenditures during the window, with approximately 71% or \$110.6 million of the total expenditures. Design has the second largest amount of programmed expenditures with 27% or \$41.6 million of the total. Finally, Planning and Inspection / Cleaning represent the remaining 2% or \$3.1 million of the expenditures.



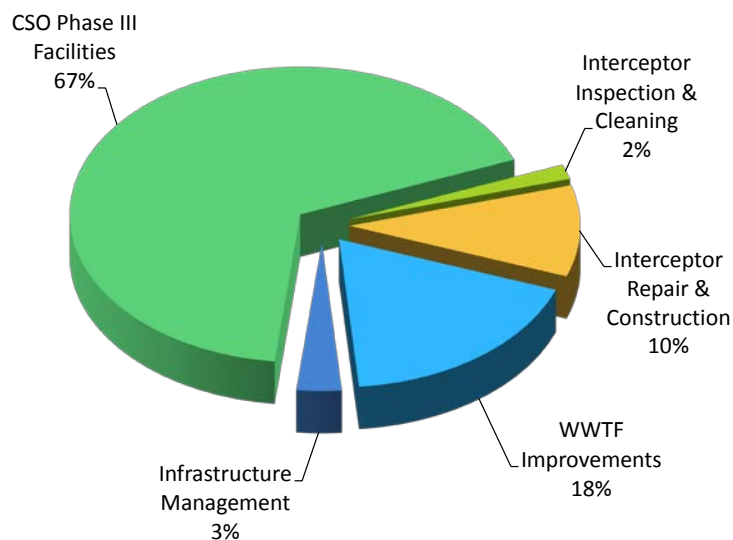
Capital Improvement Program by Functional Area

NBC categorizes each capital project into one of seven functional areas, according to the scope and tasks involved within each capital project. The seven functional areas are described in the following table.

Functional Area	Definition
Wastewater Treatment Facility Improvements (WWTF)	Projects related to improvements at the NBC's Wastewater Treatment Facilities including Nitrogen Removal Facilities.
Infrastructure Management (IM)	Includes Water Quality Modeling, System-wide Facilities Planning and Interceptor Easements.
Combined Sewer Overflow Phase II (CSO Phase II)	Projects related to the CSO Abatement Phase II Facilities.
Combined Sewer Overflow Phase III (CSO Phase III)	Projects related to the CSO Abatement Phase III Facilities.
Sewer System Improvements (SSI)	Projects related to pump station improvements and other sewer system related improvements.
CSO Interceptor Inspection and Cleaning (IIC)	Projects related to interceptor inspection and cleaning.
CSO Interceptor Repair and Construction (IRC)	Projects related to interceptor repair and maintenance.

The following graph shows the allocation of capital expenditures according to the functional area classification. Of the approximately \$155.3 million in capital expenditures scheduled over this year's CIP window, \$104.3 million, or 67%, is allocated to the design and construction of the CSO Phase III facilities. Approximately \$28.0 million or 18% is for Wastewater Treatment Facility Improvements at both Field's Point and Bucklin Point. In addition, \$15.5 million or 10% is for interceptor repair and construction. The remaining expenditures of \$7.5 million or 5% are for Infrastructure Management and Interceptor Inspection and Cleaning.

CIP Costs by Functional Area



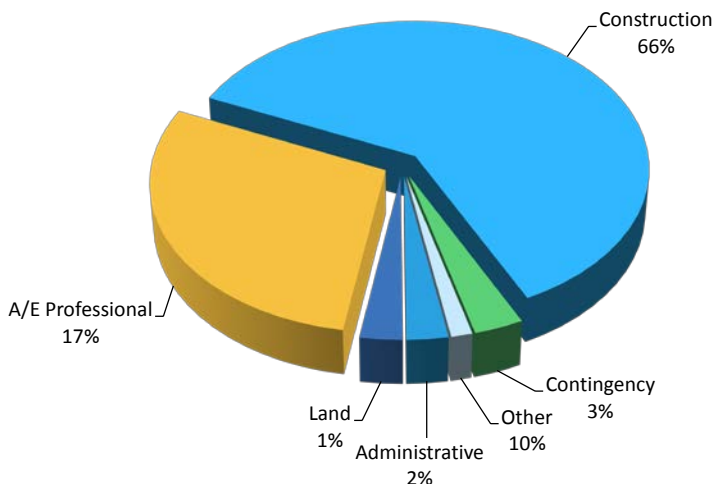
The following table shows a comparison of the capital expenditures by functional area from the prior CIP (FY 2016-2020) to the current CIP (FY 2017-2021). The most significant change is due to the outward shift in the schedule of the CSO Phase III Facilities, which results in a 69% decline on a comparison basis with last year's CIP. It should be noted that there are no expenditures for the CSO Phase II Facilities and the Sewer System Improvements in the current window, resulting in a year-to-year decrease, due to completion of these projects. In addition, the CSO Interceptor Repair and Construction projects show decreased expenditures of 15%. The only increase from the prior year window is for Infrastructure Management at 27% or \$1.0 million. Overall, there is a decrease of 61% in programmed expenditures for the current CIP window as compared to last year's CIP window.

Functional Area (in thousands)	Prior Year CIP (FY 2016-2020)	Current Year CIP (FY 2017-2021)	% Change
Wastewater Treatment Facility Improvements	\$ 28,128	\$ 28,048	(0%)
Infrastructure Management	3,847	4,884	27%
CSO Phase II Facilities	13,555	-	(100%)
CSO Phase III Facilities	334,412	104,312	(69%)
Sewer System Improvements	651	-	(100%)
CSO Interceptor Inspection and Cleaning	2,500	2,500	0%
CSO Interceptor Repair and Construction	18,197	15,522	(15%)
Total	\$ 401,289	\$ 155,267	(61%)

For planning purposes, the programmed expenditures within each project are classified into cost categories. Cost categories include the Administrative category, which includes NBC's project management costs as well as police, legal and advertising expenses. The Land category includes costs for easements, as well as land acquisition. The Architectural/Engineering (A/E) Professional cost category includes costs for architectural and engineering services related to planning or design. The Construction cost category reflects contractor and outside construction management costs. Lastly, the Contingency cost category includes an allowance for construction cost increases based upon industry experience related to construction cost factors.

As shown in the following chart, Construction costs represent \$94.7 million, or approximately 66% of the total costs within the five-year period. Architectural and Engineering services represent approximately \$49.0 million or 17% of the costs during this same period.

CIP Costs by Type of Activity



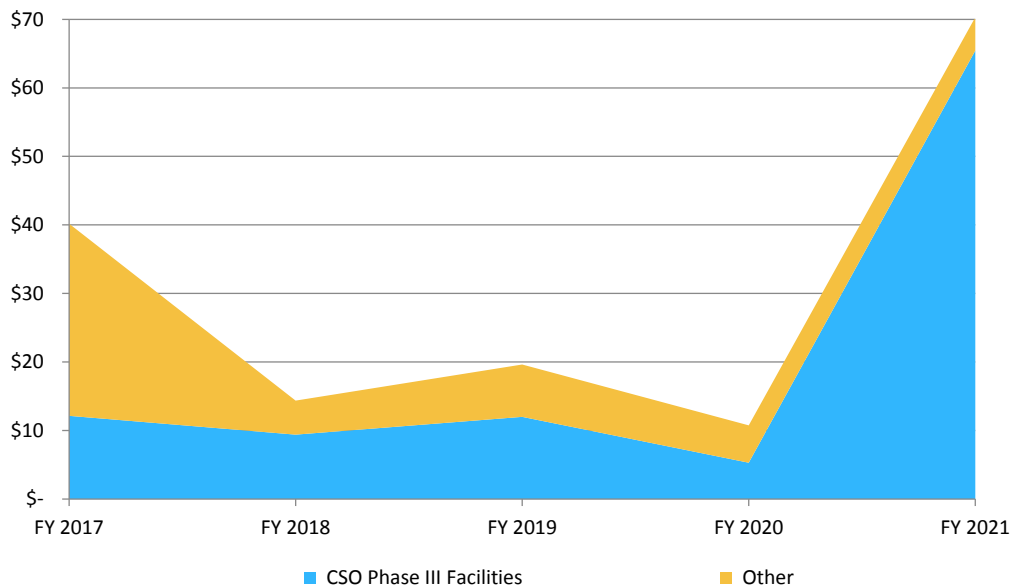
Significant & Other Capital Improvement Projects

The most significant project included in this year's CIP is for the reevaluation, design and construction of the CSO Phase III Facilities accounts for \$104.3 million or 67% during the five-year window of this year's CIP. Currently, NBC is required to complete preliminary design of the CSO Phase III Facilities within one year of completion of the CSO Phase II Facilities. Other, smaller projects account for the remaining 33% of the CIP. The following table and graph show the programmed expenditures for the CSO Phase III Facilities and other projects included in the current CIP window.

Expenditures by Major Project
(In thousands)

Project	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total Costs FY 2017 - 2021	% of Five-Year Window
CSO Phase III Facilities	\$ 12,152	\$ 9,408	\$ 12,002	\$ 5,311	\$ 65,440	\$ 104,312	67%
Other	28,041	4,964	7,637	5,450	4,864	50,954	33%
Total	\$ 40,193	\$ 14,371	\$ 19,639	\$ 10,760	\$ 70,304	\$ 155,267	100%

Expenditures by Major Project
(In Millions)



NBC's Other Capital Projects include the CSO Interceptor Repair & Construction, WWTF Improvements, BPWWTF Renewable Energy Projects and Infrastructure Management. Costs for these projects during the five-year period total \$50.9 million, or 33% of this year's CIP as is shown in the following table.

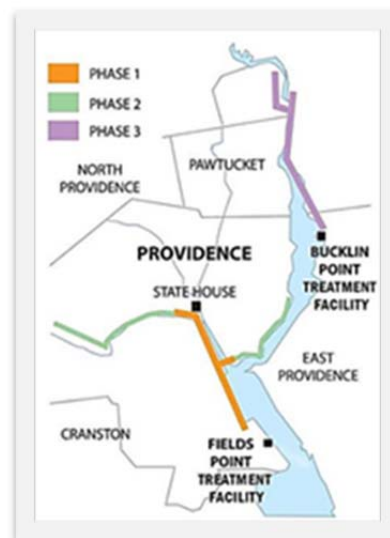
Project	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total Costs FY 2017 - 2021	% of Five-Year Window
CSO Interceptor Repair & Construction	\$ 7,513	\$ 823	\$ 1,006	\$ 3,928	\$ 4,753	18,022	12%
WWTF Improvements	4,327	3,024	5,797	1,189	50	14,386	9%
BPWWTF Renewable Energy Projects	13,598	64	-	-	-	13,662	9%
Infrastructure Management	2,603	1,053	834	333	61	4,884	3%
Total	\$ 28,041	\$ 4,964	\$ 7,637	\$ 5,450	\$ 4,864	\$ 50,954	33%

CSO Abatement Program

In accordance with the terms and schedule set forth in the Consent Agreement between NBC and RIDEM, this CIP shows NBC's continued commitment to proceed with the facilities construction of the three phased federally mandated CSO Abatement Program.

CSO Phase II Facilities (Project 303)

The CSO Phase II Facilities are the second phase of the three phase federally mandated CSO Abatement Program. The most significant components of Phase II include the construction of two main interceptors in the Field's Point service area, four sewer separation contracts and a wetlands treatment facility. This project was separated into fourteen construction contracts and all facilities are now online. Currently, construction is approximately 99% complete with an estimated cost of \$190.7 million. Construction of these facilities began in FY 2012 and is scheduled to be complete in FY 2016.



Contract #	Project Name	Estimated/Actual Cost (In Thousands)	Percent Complete
Contracts Completed:			
30305C	OF027 Sewer Separations	\$ 12,390	100%
30309C	WCSOI Regulator	942	100%
30310C	Woonasquatucket CSO Interceptor- North	9,277	100%
30311C	Woonasquatucket CSO Interceptor- West	10,259	100%
30312C	SCSOI Regulator	736	100%
30313C	WCSOI Site Demo	122	100%
30314C	WCSOI OF 054	2,825	100%
<i>Subtotal - Contracts Completed</i>		36,550	
Contracts In-Progress:			
30301RS	Program and Construction Management	19,932	99%
30302C	OF 106 Facilities	5,518	99%
30303C	WCSOI Main	78,448	99%
30304C	SCSOI Main	20,906	99%
30306C	OF 037 West	10,096	100%
30307C	Sewer Separation/Flow Modification OF-037 South	10,094	99%
30308C	Sewer Separation/Flow Modification OF-037 North	9,177	100%
<i>Subtotal - Contracts In-Progress</i>		154,171	
Total - CSO Phase II Facilities		\$ 190,721	99%

CSO Phase III Facilities (Project 308)

The CSO Phase III Facilities represent the third and final phase of the federally mandated CSO Abatement Program required as part of a Consent Agreement between NBC and RIDEM. NBC is legally required to proceed with Phase III in order to comply with federal law. The Consent Agreement requires that NBC complete preliminary design of the CSO Phase III Facilities within one year following the completion of Phase II and final design within one year of RIDEM's approval of the preliminary design.

In January 2014, NBC initiated the reevaluation of the Phase III Facilities as proposed in the Conceptual Design Report Amendment (CDRA) approved by RIDEM nearly twenty years ago in 1998. These facilities include a 13,000 foot long deep rock tunnel in Pawtucket along the Seekonk and Blackstone Rivers, four sewer separation projects and three CSO Interceptors to convey flow to the Phase III tunnel. Flow stored in the tunnel will be pumped to the Bucklin Point WWTF for treatment.

The reevaluation was conducted to determine the level of improvement in water quality as a result of the work completed in the first two phases, performance of an affordability analysis based on Environmental Protection Agency (EPA) criteria and to determine if there is a better alternative than the one currently approved by RIDEM.



Photo: Highlighted route of CSO Phase III

The NBC Board of Commissioners (Board) evaluated several alternatives over the course of sixteen months including comprehensive workshops. The Board selected an alternative plan that they believe provides the best combination of affordability and water quality improvement at its April 28th Board meeting.

NBC will submit the final reevaluation report based upon the alternative selected by the Board, to RIDEM in July 2015. It is expected that the RIDEM review and approval of the final report will take approximately six months. Subsequent to approval, NBC will initiate preliminary design, which is projected to take eighteen months. Preliminary design plans will then be submitted to RIDEM and it is estimated that this review will also take six months. Upon approval of the preliminary design plans by RIDEM, final design will be completed in another eighteen months. Review and approval of the final design plans by RIDEM is then expected to take six months. Based upon these expected review periods, construction is projected to begin in mid-2020. The total pre-design estimate for Phase III totals \$815 million. Design of the selected alternative represents approximately \$37.8 million in this year's CIP window and includes a pre-design cost estimate of \$66.5 million for construction.

Renewable Energy

A renewable energy source is one which is continuously created. Renewable energy sources minimize greenhouse gases and allow future generations to meet their energy needs. NBC currently has two projects that meet these criteria and will be constructed the Bucklin Point WWTF.

Bucklin Point Biogas Reuse

At Bucklin Point, NBC uses a process called anaerobic digestion to treat and stabilize biosolids from the wastewater treatment process. The biosolids are placed in large heated digester tanks and biologically decompose in the absence of oxygen, generating a methane rich biogas byproduct. NBC currently uses about 50% of this biogas in an on-site heat exchanger to supply heat to the anaerobic digestion tanks, while the remaining biogas is flared as waste.

NBC will install a combined heat and power system and burn all the biogas in a reciprocating engine to generate approximately 4.5 million kWh of electricity and heat for reuse in the treatment facility. This process will reduce NBC's dependency on fossil fuel generated electricity and reduce NBC's carbon footprint through the efficient use of this readily available renewable fuel. The estimated construction cost for the Biogas Reuse Project (120) is \$8.1 million. This project has qualified for \$512 thousand in "principal loan forgiveness", administered through the RICWFA. In addition, NBC has applied for several grants and incentives from various entities, including National Grid's Combined Heat and Power Program, the RI Renewable Energy Fund and the Regional Greenhouse Gas Initiative.



Photo: Bucklin Point Digester building

Bucklin Point Solar Energy



Photo: Solar Photovoltaic Energy Array

NBC is currently investigating the feasibility of installing a 2 Mega Watt solar photovoltaic energy array at the Bucklin Point WWTF. Solar photovoltaic energy is clean, reliable, and economical. Photovoltaic energy cells have semiconductors and are capable of converting sunlight directly into electrical energy. Well maintained modern solar panels can continue to produce energy for more than 25 years. The proposed solar energy array would cover approximately 8.8 acres at the closed Bucklin Point landfill and is estimated to generate approximately 2.3 million kWh of clean renewable electricity annually.

Collection System Infrastructure

This CIP includes projects that demonstrate NBC's continued commitment to maintain NBC's infrastructure and collection system. Through this initiative, NBC is able to program its capital expenditures in an efficient manner. These projects allow NBC to protect its infrastructure, maximize flow capacity, and provide for the health and safety of the public. In this year's CIP, NBC allocates \$1.5 million for interceptor construction and repairs and \$500 thousand for interceptor inspection and cleaning annually in years that do not have specific projects identified. As improvement projects are identified through the inspection process they are funded from the annual allocation.



Photo: Interceptor Grit Removal

Capital Improvement Program Changes

Completed Projects

NBC completed sixteen capital projects in FY 2015 at a total cost of \$100.2 million. Of the sixteen completed projects, \$177 thousand of the expenditures relate to the planning and design phases of various projects. The majority of the completed projects were construction related, with the largest completed contract, Project 10901C FPWWTF Nitrogen Removal Facilities accounting for 62% of the total completed project total. The following table shows all completed project costs.

Project Number	Project Name	Total Cost (In Thousands)
30457P	Providence River Siphon Replacement - Planning	\$ 135
70800P	Omega Pump Station Improvements - Planning	1
81000P	BPWWTF - UV Disinfection Improvements - Planning	3
11602D	FPWWTF - Tunnel Pump Station Improvements Design	5
12700D	FPWWTF Electrical Substation No. 1 - Design	33
	<i>Subtotal</i>	<u>\$ 177</u>
10901C	FPWWTF - Nitrogen Removal Facilities	\$ 61,760
12500C	Utility Reliability Enhancement for FP Campus	409
30305C	Phase II CSO Facilities - OF 027	12,390
30310C	Phase II CSO Facilities - WCSOI North	9,277
30311C	Phase II CSO Facilities - WCSOI West	10,259
30312C	Phase II CSO Facilities - SCSOI Regulator	736
30314C	Phase II CSO Facilities - WCSOI OF 054	122
30470M	North Providence Interceptor Inspection	45
30456C	NBC Interceptor Lining at Butler Hospital	263
30600C	Floatables Control Facilities - Construction	4,571
81100C	BPWWTF - Effluent Pumps Rehabilitation	142
	<i>Subtotal</i>	<u>99,974</u>
	Completed Project Total	<u>\$ 100,151</u>

New Projects

This year's CIP identifies eight new capital projects at a cost of \$9.5 million. Project 10907C includes the installation of two new blowers, while Project 10908 includes the design and construction of a new blower building with centrifugal blowers at Field's Point to provide sufficient and reliable sources of air for the aeration treatment process. Final Clarifier Improvements at the FPWWTF will be conducted under Project 13000. Flood Protection at Bucklin Point will be improved by installing a gate at the wet weather pump station and installing a gate in the cooling pond water drain line under Project 81300C. Project 30462C involves the lining of sewer pipes and rehabilitation of manholes on Butler Hospital property in Providence. Finally, Project 30472M will involve interceptor inspection and cleaning in Providence and Lincoln.

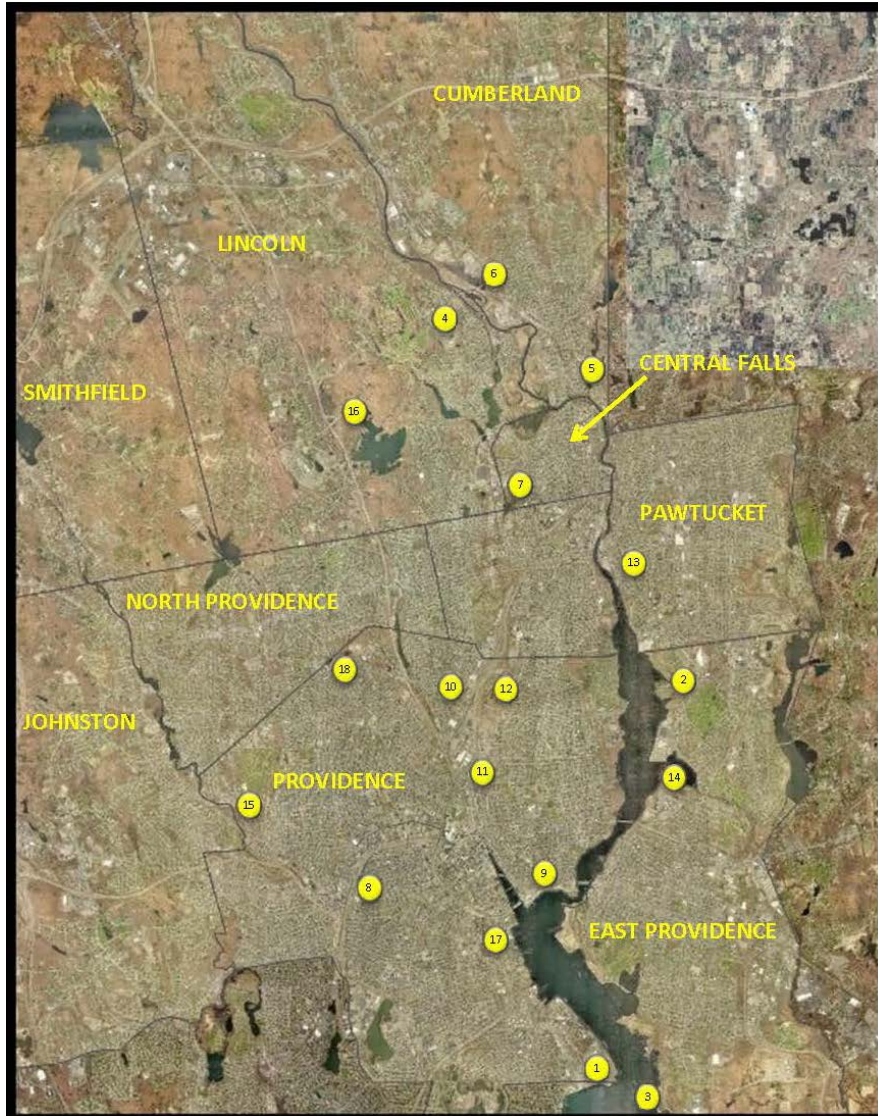
Project Number	Project Name	Estimated Cost (In thousands)
10907C	FP - Blower Improvements	\$ 1,179
10908D	FPWWTF Blower Improvements Phase II - Design	325
10908C	FPWWTF Blower Improvements Phase II - Construction	2,340
13000D	Final Clarifier Improvements - Design	117
13000	Final Clarifier Improvements - Construction	2,736
81300C	BPWWTF Flood Protection	1,282
30462C	Improvements to Interceptors FY 2016	1,327
30472M	Providence and Lincoln Inspection & Cleaning	220
	Estimated Total	<u>\$ 9,526</u>

Capital Improvement Program Project Locations

The capital projects identified in this year’s CIP are shown on the map on the following page. The map highlights 18 project locations as identified below. Some projects are System Wide and noted as SW.

Legend Key	Project Number	Project Name	
Wastewater Treatment Facility Improvements			
	1	10907C	FP - Blower Improvements
	1	10908	FPWWTF Blower Improvements Phase II
	1	11602C	FPWWTF Tunnel Pump Station Improvements - Construction
	1	11900	Regulatory Compliance Building
	2	12000	BPWWTF - Biogas Reuse
	1	12400	NBC IM Facilities
	1	12700C	FPWWTF Electrical Substation No. 2 - Construction
	2	12800	BPWWTF Solar Energy
	1	12900	FPWWTF Operations and Lab Building Reuse
	1	13000C	FPWWTF Final Clarifier Improvements - Construction
	2	80900	BPWWTF - Nitrogen Removal Facilities
	2	81000D	BPWWTF UV Disinfection Improvements - Design
	2	81200P	BPWWTF - Outfall Improvements
	2	81300C	BPWWTF Flood Protection
Infrastructure Management			
	3	1100000	Site Specific Study
	3	1140100	River Model Development
	3	1140200	Receiving Water Compliance Study
	1,2	1140300	Green House Gas Study
	5	30438	NBC Interceptor Easements (AVI) - Construction
	SW	30500	NBC Interceptor Easements - Various Locations
	6	30501	NBC Interceptor Easements (BVI)
	SW	30700	NBC System-Wide Facilities Planning
	1	40100P	NBC Facility Electrical Improvements- Planning
	10,11,12	40200	NBC System-Wide Inflow Reduction
	SW	40300	Municipal Sewer Acquisition Impact
CSO Phase II & Phase III Facilities			
	7	30302C	Phase II CSO Facilities - OF 106
	8	30303C	Phase II CSO Facilities - WCSOI Main
	9	30404C	Phase II CSO Facilities - SCSOI Main
	10	30306C	Phase II CSO Facilities - OF 037 West
	11	30307C	Phase II CSO Facilities - OF 037 South
	12	30308C	Phase II CSO Facilities - OF 037 North
	13	30800	Phase III CSO Facilities
Sewer System Improvements			
	14	70800	Omega Pump Station Improvements
CSO Interceptor Inspection /Cleaning and Repair / Construction			
	15	30472M	Providence and Lincoln Interceptor Inspection & Cleaning
	16	30421	Louisquisset Pike Interceptor Replacement
	7	30444	Moshassuck Valley Interceptor
	17	30457	Providence River Siphon Replacement
	4, 18	30458	Douglas/Branch Avenue Interceptor Relief
	SW	30459C	Improvements to Interceptors FY 2015
	SW	30462C	Improvements to Interceptors FY 2016

CAPITAL IMPROVEMENT PROGRAM PROJECT LOCATIONS



Impact of the CIP on the Operating Budget

The primary impact of the CIP on the Operating Budget is the payment of debt service in the form of principal and interest on the borrowings executed to finance the CIP. Financing costs and debt service associated with new debt for the CIP Program are not included in the CIP expenditures or the project cash flows. The debt service and user fee projections associated with financing this CIP are identified in the Long-Term Debt Overview section of the Operating Budget.

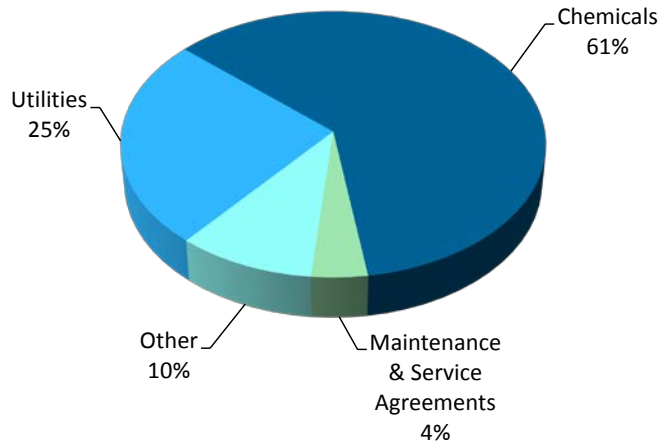
Although the CIP's primary impact on the Operating Budget is debt service, certain capital improvements will also directly impact operating costs. These expenditures relate to the operation of the completed capital improvements and are incorporated into the operating budget. In this CIP, NBC's engineers have identified four capital projects that will impact NBC's operating budget once they become operational. The following table provides a summary of operational costs by capital project of the current fiscal year and the CIP window.

CIP Impact on Operating Budget (In thousands)

Project Name	Expenditure Type	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Regulatory Compliance Building							
	Utilities	\$ -	\$ 110	\$ 112	\$ 114	\$ 117	\$ 119
	<i>Subtotal</i>	-	110	112	114	117	119
BPWWTF Biogas Reuse							
	Maintenance & Service Agreements	-	-	172	172	172	172
	Utilities	-	-	(527)	(527)	(527)	(527)
	<i>Subtotal</i>	-	-	(355)	(355)	(355)	(355)
BPWWTF Solar Energy							
	Utilities	-	(231)	(236)	(241)	(245)	(250)
	Maintenance & Service Agreements	-	-	-	-	-	-
	<i>Subtotal</i>	-	(231)	(236)	(241)	(245)	(250)
CSO Phase II Facilities							
	Utilities	16	31	34	37	40	43
	Labor	1	1	1	1	1	1
	Chemicals	39	39	39	39	39	39
	Maintenance & Service Agreements	3	3	3	3	3	3
	Other	6	6	6	6	6	6
	<i>Subtotal</i>	64	80	83	86	89	92
Total		\$ 64	\$ (42)	\$ (396)	\$ (396)	\$ (395)	\$ (395)

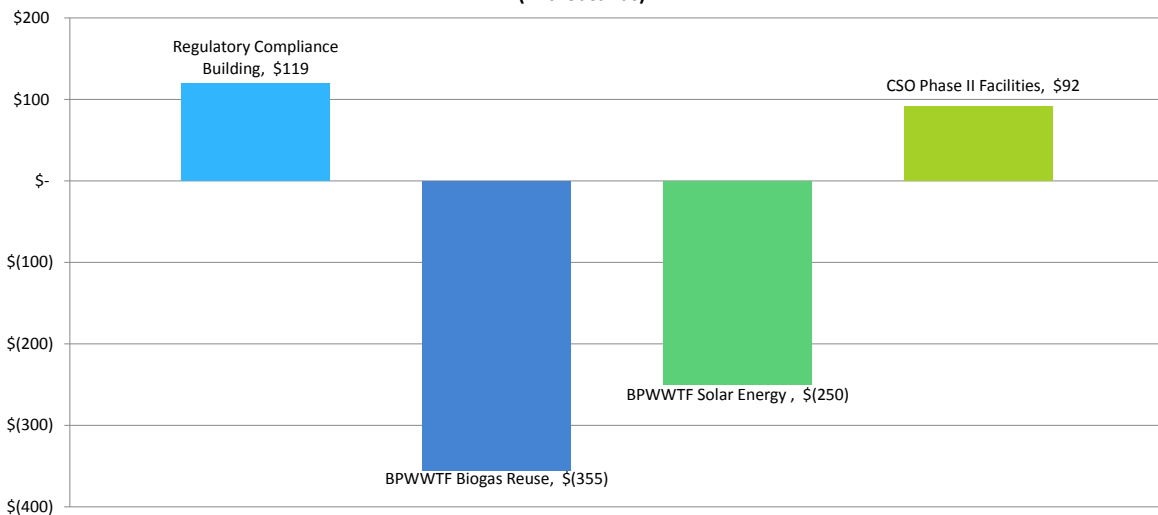
The following graph shows the percentage of CIP impact by element of operating expense for FY 2016 as they relate to the CSO Phase II Facilities. The majority of the expense, or 61%, is related to chemicals, while increased utilities costs represent 25% and Maintenance and Service Agreements and Other comprise the remaining 14% of the costs.

**FY 2016 CIP Impact by Element of Operating Expense
Resulting from CSO Phase II**



Operational impacts for FY 2017-2021 are for chemicals, utilities, maintenance & service agreements and other smaller expense items. The majority of the impacts are related to the BPWWTF Biogas Reuse and the Solar Energy project which will generate energy once the facilities are complete and include overall cost savings. In addition, there are minor impact expenses related to the CSO Phase II Facilities and the Regulatory Compliance Building which include utilities, and maintenance for the new facilities. In order to assess the impact of the operational costs for these facilities, the costs have been calculated as a percentage of the projected operating budget. In FY 2021, the net impact of the completed projects, represent operational cost savings of \$395 thousand, or 1.0% of the proposed operating budget. The cost savings are the result of the positive energy impacts of NBC’s renewable energy projects. The following graph illustrates the cost impact by project.

**FY 2021 CIP Impact by Project
(In thousands)**



Capital Improvement Program Funding

NBC recognizes the importance of planning for capital expenditures in the context of overall financial management. NBC is committed to obtaining the lowest cost of financing in order to minimize ratepayer impact, while ensuring compliance with regulatory constraints. NBC is authorized to issue debt to finance its CIP and uses a Long-Term Financial Model to identify capital funding needs and sources and to project debt issuance.

NBC maximizes its borrowing from the Rhode Island Clean Water Finance Agency (RICWFA) to the extent that there are loans available. The RICWFA, through the State Revolving Fund Program (SRF), provides interest rate subsidies on loans for eligible projects. However, RICWFA does not have sufficient capacity to meet all the NBC's needs.

Other factors that must be considered include:

- NBC is regulated by the Rhode Island Public Utilities Commission (PUC) and the PUC has restricted the use of the prior year debt service coverage allowance to fund only operating capital and capital projects, as well as the Reserve for Revenue Stability Fund.
- NBC must take into consideration arbitrage expenditure requirements to avoid financial penalties.
- There are restrictions on the types of expenditures that may be financed through SRF. For example, land may not be financed through SRF, and only projects that have been approved by RIDEM and are reachable on the RIDEM's project priority list are eligible for SRF funding.
- NBC must also expend and manage its resources in accordance with NBC's Trust Indenture and Twenty-Two Supplemental Indentures.

Capital Project Summary by Fiscal Year

Project Number	Project Name	Project Priority	Pre-Fiscal Year 2016	Fiscal Year 2016	Fiscal Years 2017-2021	Post-Fiscal Year 2021	Total Estimated Project Cost
Wastewater Treatment Facility Improvements							
10907C	FP - Blower Improvements	A	\$ 683	\$ 496	\$ -	\$ -	\$ 1,179
10908D	FPWWTF Blower Improvements Phase II - Design	B	30	295	-	-	325
10908C	FPWWTF Blower Improvements Phase II - Construction	B	-	14	2,326	-	2,340
11602C	FPWWTF Tunnel Pump Station Improvements - Construction	B	44	669	-	-	713
11900C	Regulatory Compliance Building Construction	A	9,296	11,766	90	-	21,153
12000C	BPWWTF - Biogas Reuse - Construction	C	138	1,515	6,399	-	8,052
12400D	New IM Facilities - Design	C	-	2	555	-	557
12400C	New IM Facilities - Construction	C	-	-	6,052	-	6,052
12700C	FPWWTF Electrical Substation No. 1 - Construction	B	205	1,406	7	-	1,618
12800P	BPWWTF Solar Energy - Planning	C	32	23	-	-	55
12800D	BPWWTF Solar Energy - Design	C	-	166	-	-	166
12800C	BPWWTF Solar Energy - Construction	C	-	13	7,263	-	7,275
12900P	FPWWTF- Operations and Lab Building Reuse - Planning	C	4	70	-	-	74
12900D	FPWWTF- Operations and Lab Building Reuse - Design	C	-	14	326	-	340
12900C	FPWWTF- Operations and Lab Building Reuse - Construction	C	-	-	976	-	976
13000D	FPWWTF Final Clarifier Improvements - Design	C	6	111	-	-	117
13000C	FPWWTF Final Clarifier Improvements - Construction	C	-	64	2,673	-	2,736
80900C	BPWWTF - Nitrogen Removal Facilities - Construction	A	39,004	199	-	-	39,204
81000D	BPWWTF UV Disinfection Improvements - Design	C	-	125	105	-	230
81300C	BPWWTF Flood Protection	B	-	6	1,277	-	1,282
<i>Subtotal - Wastewater Treatment Facility Improvements</i>			\$ 49,443	\$ 16,953	\$ 28,048	\$ -	\$ 94,443
Infrastructure Management							
1100000	Site Specific Study	A	\$ 211	\$ -	\$ 245	\$ -	\$ 457
1140100	River Model Development	C	347	178	-	-	525
1140200	Receiving Water Compliance Study	B	-	-	300	-	300
1140300	Green House Gas Study	C	60	215	130	-	405
30438D	NBC Interceptor Easements (AVI) - Design	B	670	118	-	-	788
30438C	NBC Interceptor Easements (Various Locations) - Construction	B	-	376	360	-	736
30500D	NBC Interceptor Easements (Various Locations) - Design	B	-	-	722	-	722
30500C	NBC Interceptor Easements (Various Locations) - Construction	B	-	-	632	-	632
30501D	NBC Interceptor Easements (BVI) - Design	A	282	216	-	-	498
30501C	NBC Interceptor Easements (BVI) - Construction	A	-	20	726	-	746
30700D	NBC System-wide Facilities Planning	C	-	43	466	-	509
40100P	NBC Facility Electrical Improvements- Planning	B	-	4	126	-	130
40200D	NBC System-Wide Inflow Reduction-Design	A	-	-	330	-	330
40200C	NBC System-Wide Inflow Reduction-Construction	A	-	-	551	-	551
40300P	Municipal Lateral Sewer Acquisition Impact	A	-	-	296	-	296
<i>Subtotal - Infrastructure Management</i>			\$ 1,570	\$ 1,170	\$ 4,884	\$ -	\$ 7,625
Phase II CSO Facilities							
30301D	Phase II CSO Facilities - Design	A	\$ 18,577	\$ 228	\$ -	\$ -	\$ 18,805
30301RS	Phase II CSO Facilities - Program & Construction Management	A	17,954	1,978	-	-	19,932
30302C	Phase II CSO Facilities - OF 106	A	5,468	50	-	-	5,518
30303C	Phase II CSO Facilities - WCSOI Main	A	74,946	3,502	-	-	78,448
30304C	Phase II CSO Facilities - SCSOI Main	A	20,060	846	-	-	20,906
30306C	Phase II CSO Facilities - OF 037 West	A	10,046	51	-	-	10,096
30307C	Phase II CSO Facilities - OF 037 South	A	8,117	1,977	-	-	10,094
30308C	Phase II CSO Facilities - OF 037 North	A	8,683	493	-	-	9,177
<i>Subtotal - Phase II CSO Facilities</i>			\$ 163,851	\$ 9,126	\$ -	\$ -	\$ 172,976
Phase III CSO Facilities							
30800D	Phase III CSO Facilities - Design	A	\$ 1,765	\$ 2,179	\$ 37,772	\$ 41,794	\$ 83,510
30800C	Phase III CSO Facilities - Construction	A	-	-	66,540	664,950	731,490
<i>Subtotal - Phase III CSO Facilities</i>			\$ 1,765	\$ 2,179	\$ 104,312	\$ 706,744	\$ 815,000

Capital Project Summary by Fiscal Year

Project Number	Project Name	Project Priority	Pre-Fiscal Year 2016	Fiscal Year 2016	Fiscal Years 2017-2021	Post-Fiscal Year 2021	Total Estimated Project Cost
Sewer System Improvements							
70800D	Omega Pump Station Improvements - Design	C	\$ -	\$ 107	\$ -	\$ -	\$ 107
70800C	Omega Pump Station Improvements - Construction	C	-	84	-	-	84
	<i>Subtotal - Sewer System Improvements</i>		-	191	-	-	191
CSO Interceptor Inspection & Cleaning							
30400M	Inspection and Cleaning of CSO Interceptors	B	\$ -	\$ 354	\$ 2,500	\$ 500	\$ 3,354
30472M	Providence and Lincoln Interceptor Inspection & Cleaning	A	74	146	-	-	220
	<i>Subtotal - CSO Interceptor Inspection & Cleaning</i>		\$ 74	\$ 500	\$ 2,500	\$ 500	\$ 3,574
CSO Interceptor Repair & Construction							
30400C	Repair and Construction of CSO Interceptors	B	\$ -	\$ -	\$ 1,500	\$ 1,500	\$ 3,000
30421C	Louisquisset Pike Interceptor Replacement - Construction	C	-	1,139	1,759	-	2,898
30444D	Moshassuck Valley Interceptor - Design	C	232	153	-	-	385
30444C	Moshassuck Valley Interceptor - Construction	C	-	856	3,128	-	3,984
30457D	Providence River Siphon Replacement - Design	B	-	175	-	-	175
30457C	Providence River Siphon Replacement - Construction	B	-	27	778	-	805
30458P	Douglas/Branch Avenue Interceptor Relief - Planning	B	7	2	69	-	78
30458D	Douglas/Branch Avenue Interceptor Relief - Design	B	-	-	677	-	677
30458C	Douglas/Branch Avenue Interceptor Relief - Construction	B	-	-	6,283	-	6,283
30459C	Improvements to Interceptors FY 2015	A	47	1,166	5	-	1,218
30462C	Improvements to Interceptors FY 2016	B	-	4	1,323	-	1,327
	<i>Subtotal - CSO Interceptor Repair & Construction</i>		\$ 286	\$ 3,523	\$ 15,522	\$ 1,500	\$ 20,830
Total Capital Improvement Program			\$ 216,988	\$ 33,641	\$ 155,267	\$ 708,744	\$ 1,114,639

Priority	Description
A	Mandated, emergency or under construction, etc.
B	Not mandated but project is imperative to ongoing operation of facilities
C	Project is important but not critical to ongoing operations

10907C

FP - Blower Improvements

Project Manager: Tom Brueckner, P.E.
 Contractor(s): CDM Smith

Location: Field's Point Wastewater Treatment Facility, Providence, RI
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	June-14	September-15	15 Months	\$1,179
Total Project	June-14	September-15	15 Months	\$1,179



Photo: FP Blower Building

This project involves the installation of two new blowers in the existing blower building to ensure that sufficient air is available for the aeration treatment process.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 10907C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 81	\$ 30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 111
A/E Professional	144	5	-	-	-	-	-	-	149
Construction	452	461	-	-	-	-	-	-	913
Contingency	-	-	-	-	-	-	-	-	-
Other	6	-	-	-	-	-	-	-	6
Total	\$ 683	\$ 496	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,179

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

10908

FPWWTF Blower Improvements Phase II

Project Manager: Tom Brueckner, P.E.
 Contractor(s): N/A

Location: Field's Point WWTF (Providence, RI)
 Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	February-15	April-16	14 Months	\$325
Construction	April-16	January-18	21 Months	2,340
Total Project	February-15	January-18	36 Months	\$2,665



Photo: Field's Point Aeration Treatment Process

This project is to construct a new blower building and replace the existing blowers at Field's Point with new centrifugal blowers to provide a reliable source of air for the aeration treatment process.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 10908D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 10	\$ 40	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 50
Land	-	-	-	-	-	-	-	-	-
A/E Professional	20	230	-	-	-	-	-	-	250
Other	-	25	-	-	-	-	-	-	25
Total Project Costs	\$ 30	\$ 295	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 325

Projected Expenditures - 10908C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 14	\$ 48	\$ 28	\$ -	\$ -	\$ -	\$ -	\$ 90
A/E Professional	-	-	29	21	-	-	-	-	50
Construction	-	-	608	1,392	-	-	-	-	2,000
Contingency	-	-	-	200	-	-	-	-	200
Other	-	-	-	-	-	-	-	-	-
Total	\$ -	\$ 14	\$ 685	\$ 1,641	\$ -	\$ -	\$ -	\$ -	\$ 2,340

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

11602

FPWWTF Tunnel Pump Station Improvements

Project Manager: Tom Brueckner, P.E.
Contractor(s): N/A

Location: Field's Point Wastewater Treatment Facility, Providence, RI
Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	April-14	March-15	10 Months	\$8
Construction	April-15	January-16	9 Months	713
Total Project	April-14	January-16	20 Months	\$721



Photo: Tunnel Pump Station

This project involves improvements to the Tunnel Pump Station including the rehabilitation of the canopy roof which protects the pump station equipment from water damage and replacement of the ground water collection and conveyance system.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 11602D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8

Projected Expenditures - 11602C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 15	\$ 23	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38
A/E Professional	4	21	-	-	-	-	-	-	25
Construction	-	550	-	-	-	-	-	-	550
Contingency	-	50	-	-	-	-	-	-	50
Other	25	25	-	-	-	-	-	-	50
Total	\$ 44	\$ 669	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 713

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

11900

NBC Regulatory Compliance Building and Related Upgrades

Project Manager: Rich Bernier, P.E.
 Contractor(s): Calson Construction Corp.

Location: Service Road (Providence, RI)
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	September-08	June-09	9 Months	\$415
Design	September-10	June-14	46 Months	3,000
Construction	June-13	October-16	41 Months	21,153
Total Project	September-08	October-16	99 Months	\$24,568



This project is for the design and construction of the Regulatory Compliance Building which will house the EMDA and Laboratory sections of the NBC. This project will unify NBC's efforts for environmental sampling and related analysis by including the necessary laboratory equipment and monitoring capability required by the RIPDES permit and EPA. This building is proposed to be 36,800 square feet and will be located on Service Road in Providence. This project also includes related site demolition.

Photo: Regulatory Compliance Building Steel Framing

Projected Expenditures - 11900P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 206	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 206
A/E Professional	209	-	-	-	-	-	-	-	209
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 415	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 415

Projected Expenditures - 11900D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 230	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 230
Land	1,247	-	-	-	-	-	-	-	1,247
A/E Professional	1,464	-	-	-	-	-	-	-	1,464
Other	59	-	-	-	-	-	-	-	59
Total Project Costs	\$ 3,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,000

Projected Expenditures - 11900C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 399	\$ 163	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 563
A/E Professional	1,197	399	-	-	-	-	-	-	1,596
Construction	7,349	10,556	90	-	-	-	-	-	17,995
Contingency	-	639	-	-	-	-	-	-	639
Other	350	10	-	-	-	-	-	-	360
Total	\$ 9,296	\$ 11,766	\$ 90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,153

Operating Impact

	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
	N/A	N/A	\$ 110	\$ 112	\$ 114	\$ 117	\$ 119	N/A	\$ 572

Note: Cash Flow Basis in Thousands

12000

BPWWTF Biogas Reuse

Project Manager: Rich Bernier, P.E.
Contractor(s): Brown & Caldwell

Location: Bucklin Point WWTF (East Providence, RI)
Project Priority: C

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	June-07	December-09	31 Months	\$47
Design	April-10	June-14	52 Months	471
Construction	June-14	April-18	47 Months	8,052
Total Project	June-07	April-18	133 Months	\$8,570



Photo: Bucklin Point Boiler Stacks

This project consists of the installation of a reciprocating engine to use biogas generated within the biosolids anaerobic digesters at the Bucklin Point WWTF as a fuel to generate electricity and heat for reuse in the treatment facility. This project is currently in the design phase which includes the design of a biogas pretreatment system, development of specifications for a generator and design of the interconnection with the existing electrical system.

Projected Expenditures - 12000P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22
A/E Professional	25	-	-	-	-	-	-	-	25
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 47

Projected Expenditures - 12000D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 122	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 122
Land	-	-	-	-	-	-	-	-	-
A/E Professional	323	-	-	-	-	-	-	-	323
Other	26	-	-	-	-	-	-	-	26
Total Project Costs	\$ 471	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 471

Projected Expenditures - 12000C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 31	\$ 35	\$ 45	\$ 1	\$ -	\$ -	\$ -	\$ -	\$ 112
A/E Professional	52	145	110	13	-	-	-	-	320
Construction	50	1,300	5,570	50	-	-	-	-	6,970
Contingency	-	-	600	-	-	-	-	-	600
Other	5	35	10	-	-	-	-	-	50
Total	\$ 138	\$ 1,515	\$ 6,335	\$ 64	\$ -	\$ -	\$ -	\$ -	\$ 8,052

Operating Impact

	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
	N/A	N/A	\$ -	\$ (355)	\$ (355)	\$ (355)	\$ (355)	N/A	\$ (1,422)

Note: Cash Flow Basis in Thousands

12400

New IM Facilities

Project Manager: Rich Bernier, P.E.
Contractor(s): N/A

Location: Providence, RI
Project Priority: C

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	May-16	February-18	21 Months	\$557
Construction	January-18	July-20	31 Months	6,052
Total Project	May-16	July-20	52 Months	\$6,609

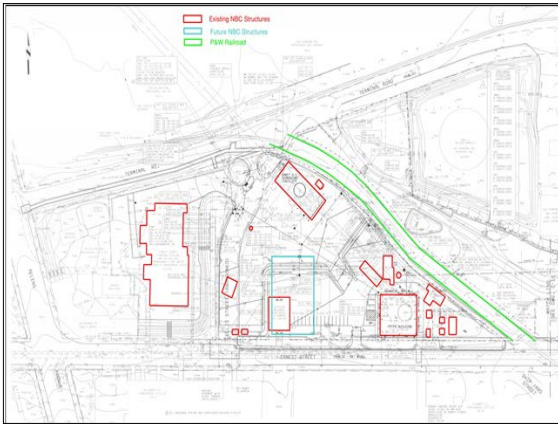


Photo: Proposed Site for New IM Building

This project consists of the design and construction of a new building that would be needed if NBC is required by legislation to assume responsibility of system-wide laterals in addition to the larger interceptors. The building will include an administrative area along with a garage area and storage yard.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 12400D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 2	\$ 27	\$ 8	\$ -	\$ -	\$ -	\$ -	\$ 37
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	400	100	-	-	-	-	500
Other	-	-	-	20	-	-	-	-	20
Total Project Costs	\$ -	\$ 2	\$ 427	\$ 128	\$ -	\$ -	\$ -	\$ -	\$ 557

Projected Expenditures - 12400C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ 17	\$ 320	\$ 15	\$ -	\$ -	\$ 352
A/E Professional	-	-	-	15	33	2	-	-	50
Construction	-	-	-	-	4,900	50	50	-	5,000
Contingency	-	-	-	-	-	600	-	-	600
Other	-	-	-	-	-	50	-	-	50
Total	\$ -	\$ -	\$ -	\$ 32	\$ 5,253	\$ 717	\$ 50	\$ -	\$ 6,052

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

12700

FPWWTF Electrical Substation No. 1

Project Manager: Tom Brueckner
 Contractor(s): E.W. Audet

Location: Providence, RI
 Project Priority: B

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	N/A	N/A	N/A	N/A
Design	December-13	May-14	5 Months	\$51
Construction	August-14	December-16	28 Months	1,618
Total Project	December-13	December-16	37 Months	\$1,669



This substation is one of the main electrical substations at the Field's Point WWTF. A recent inspection of the substation revealed that it was in poor condition due to corrosion of terminals and the cabinets. Because replacement parts are not readily available, this project is to design and construct a replacement of the substation.

Photo: Field's Point Main Electrical Substation

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 12700D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16
Land	-	-	-	-	-	-	-	-	-
A/E Professional	20	-	-	-	-	-	-	-	20
Other	15	-	-	-	-	-	-	-	15
Total Project Costs	\$ 51	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 51

Projected Expenditures - 12700C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 10	\$ 22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	195	1,204	7	-	-	-	-	-	1,406
Contingency	-	80	-	-	-	-	-	-	80
Other	-	100	-	-	-	-	-	-	100
Total Project Costs	\$ 205	\$ 1,406	\$ 7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,618

Operating Impact

	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

12800

Bucklin Point Solar Energy

Project Manager: Jim McCaughey
 Contractor: N/A

Location: Providence, RI
 Project Priority: C

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	March-15	September-15	7 Months	\$55
Design	October-15	May-16	8 Months	166
Construction	June-16	December-16	7 Months	7,275
Total Project	March-15	December-16	22 Months	\$7,496



The NBC is investigating the feasibility of installing a 2 MW solar array at the Bucklin Point WWTF. This solar energy system will cover an approximate area of 8.8 acres over the closed Bucklin Point landfill and will generate about 2.27 million kWh of clean renewable electricity annually.

Photo: Bucklin Point

Projected Expenditures - 12800P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 7	\$ 5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12
A/E Professional	15	15	-	-	-	-	-	-	30
Other	10	3	-	-	-	-	-	-	13
Total Project Costs	\$ 32	\$ 23	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 55

Projected Expenditures - 12800D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 51	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 51
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	100	-	-	-	-	-	-	100
Other	-	15	-	-	-	-	-	-	15
Total Project Costs	\$ -	\$ 166	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 166

Projected Expenditures - 12800C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 13	\$ 63	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 75
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	7,000	-	-	-	-	-	7,000
Contingency	-	-	200	-	-	-	-	-	200
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ 13	\$ 7,263	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,275

Operating Impact

	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
	N/A	N/A	\$ (231)	\$ (236)	\$ (241)	\$ (245)	\$ (250)	N/A	\$ (1,204)

Note: Cash Flow Basis in Thousands

12900

FPWWTF Operations and Laboratory Building Reuse

Project Manager: Tom Brueckner
 Contractor(s): N/A

Location: Service Road (Providence, RI)
 Project Priority: C

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	April-15	February-16	10 Months	\$74
Design	May-16	December-17	19 Months	340
Construction	June-18	February-20	20 Months	976
Total Project	April-15	February-20	59 Months	\$1,390



Photo: Existing Laboratory Building

When construction of the new Regulatory Compliance Building (RCB) is completed, the existing Laboratory Building will be vacated and the EMDA section will move to the RCB freeing up space in the old Operations Building. This project involves evaluation of the best use of the vacated space and design modifications to those buildings to accommodate its intended use. It will also include design and construction of a new maintenance building.

Projected Expenditures - 12900P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 4	\$ 20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24
A/E Professional	-	50	-	-	-	-	-	-	50
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 4	\$ 70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 74

Projected Expenditures -12900D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 14	\$ 36	\$ 18	\$ -	\$ -	\$ -	\$ -	\$ 68
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	168	84	-	-	-	-	252
Other	-	-	20	-	-	-	-	-	20
Total Project Costs	\$ -	\$ 14	\$ 224	\$ 102	\$ -	\$ -	\$ -	\$ -	\$ 340

Projected Expenditures - 12900C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ 7	\$ 30	\$ 20	\$ -	\$ -	\$ 57
A/E Professional	-	-	-	4	24	16	-	-	44
Construction	-	-	-	-	414	336	-	-	750
Contingency	-	-	-	-	-	75	-	-	75
Other	-	-	-	-	25	25	-	-	50
Total Project Costs	\$ -	\$ -	\$ -	\$ 11	\$ 493	\$ 472	\$ -	\$ -	\$ 976

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

13000

FPWWTF Final Clarifier Improvements

Project Manager: Tom Brueckner, P.E.
 Contractor: N/A

Location: Field's Point WWTF (Providence, RI)
 Project Priority: C

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	June-15	November-15	5 Months	117
Construction	November-15	November-17	23 months	\$2,736
Total Project	June-15	November-17	29 Months	\$2,853



This project involves replacement of the internal drive and scraper mechanisms on final clarifiers 1, 2 and 3 and new launder covers on final clarifiers 1-9 at the Field's Point WWTF.

Photo: Final Clarifier at FPWWTF

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 13000D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 6	\$ 21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 27
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	80	-	-	-	-	-	-	80
Other	-	10	-	-	-	-	-	-	10
Total Project Costs	\$ 6	\$ 111	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 117

Projected Expenditures - 13000C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 19	\$ 26	\$ 15	\$ -	\$ -	\$ -	\$ -	\$ 60
A/E Professional	-	20	15	6	-	-	-	-	40
Construction	-	25	1,495	840	-	-	-	-	2,360
Contingency	-	-	-	236	-	-	-	-	236
Other	-	-	30	10	-	-	-	-	40
Total Project Costs	\$ -	\$ 64	\$ 1,566	\$ 1,107	\$ -	\$ -	\$ -	\$ -	\$ 2,736

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

80900

BPWWTF Nitrogen Removal Facilities

Project Manager: Rich Bernier, P.E.
 Contractor(s): Daniel O'Connell's Sons

Location: East Providence, RI
 Project Priority: A

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	July-07	September-09	26 Months	\$260
Design	April-10	October-13	43 Months	3,948
Construction	July-11	March-16	57 Months	39,204
Total Project	July-07	March-16	106 Months	\$43,412



Photo: Bucklin Point WWTF

NBC's facilities at Bucklin Point were designed and constructed to achieve a nitrogen level of 8 mg/l, but subsequent to the completion of construction, RIDEM established a new permit nitrogen level of 5 mg/l. NBC has completed the construction of the new facilities and upgrades to the existing Biological Nutrient Removal (BNR) process to achieve the new permit nitrogen limits with only retainage payments outstanding. This project includes upgrades to the existing BNR process at this facility as well as the rehabilitation of other key treatment processes.

Projected Expenditures - 80900P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 57	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 57
A/E Professional	203	-	-	-	-	-	-	-	203
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 260	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 260

Projected Expenditures - 80900D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 303	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 303
Land	-	-	-	-	-	-	-	-	-
A/E Professional	3,593	-	-	-	-	-	-	-	3,593
Other	52	-	-	-	-	-	-	-	52
Total Project Costs	\$ 3,948	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,948

Projected Expenditures - 80900C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 1,223	\$ 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,225
A/E Professional	2,497	15	-	-	-	-	-	-	2,512
Construction	35,284	84	-	-	-	-	-	-	35,368
Contingency	-	99	-	-	-	-	-	-	99
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 39,004	\$ 199	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 39,204

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

81000

BPWWTF UV Disinfection Improvements

Project Manager: Tom Brueckner
 Contractor(s): CDM Smith

Location: BPWWTF (East Providence, RI)
 Project Priority: C

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	February-15	May-15	3 Months	\$40
Design	September-15	October-16	13 Months	230
Construction	N/A	N/A	N/A	N/A
Total Project	February-15	October-16	20 Months	\$270



The Ultraviolet Disinfection system at Bucklin Point is approaching the end of its useful life. In addition, the medium pressure, high intensity lamps are expensive and less efficient than newer technologies. This project will evaluate the cost of a disinfection system replacement /upgrade and a determination of whether maintenance costs can be reduced in the interim.

Photo: Bucklin Point Ultraviolet Disinfection Building

Projected Expenditures - 81000P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8
A/E Professional	30	-	-	-	-	-	-	-	30
Other	2	-	-	-	-	-	-	-	2
Total Project Costs	\$ 40	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40

Projected Expenditures -81000D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 25	\$ 15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	100	80	-	-	-	-	-	180
Other	-	-	10	-	-	-	-	-	10
Total Project Costs	\$ -	\$ 125	\$ 105	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 230

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

81300C

BPWWTF Flood Protection

Project Manager: Rich Bernier, P.E.
 Contractor(s): N/A

Location: Providence
 Project Priority: B

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	April-16	July-18	27 Months	\$1,282
Total Project	April-16	July-18	27 Months	\$1,282



Photo: Bucklin Point WWTF Outfall

This project will provide flood protection at Bucklin Point from the hundred year storm and includes raising walls for the dry weather pump station, installing a gate for the wet weather pump station and isolating drainage from the cooling water pond. Other treatment plant improvements will also be made as part of this project.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 81300C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 6	\$ 53	\$ 3	\$ 1	\$ -	\$ -	\$ -	\$ 62
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	950	-	50	-	-	-	1,000
Contingency	-	-	120	-	-	-	-	-	120
Other	-	-	100	-	-	-	-	-	100
Total Project Costs	\$ -	\$ 6	\$ 1,223	\$ 3	\$ 51	\$ -	\$ -	\$ -	\$ 1,282

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

1100000

Site Specific Study

Project Manager: John Motta
Contractor(s): N/A

Location: Providence, RI
Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	November-01	June-17	191 Months	\$457
Construction	N/A	N/A	N/A	N/A
Total Project	November-01	June-17	191 Months	\$457



Photo: NBC Staff Collecting Samples

The Site Specific Study required by NBC's RIPDES permit was completed in FY 2003 and final results were submitted to RIDEM in FY 2004. This study characterized the level of dissolved and total metals in the receiving waters at both Field's Point and Bucklin Point. The data obtained from this study was used for project 1140100, as well as by NBC and RIDEM in the joint development of new discharge permits and consent agreements for both plants. RIDEM is currently developing new RIPDES permits for each WWTF. As a result, new studies may be required as part of the re-permitting process.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 1100000

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 16	\$ -	\$ 234	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 250
Land	-	-	-	-	-	-	-	-	-
A/E Professional	163	-	6	-	-	-	-	-	169
Other	33	-	5	-	-	-	-	-	38
Total Project Costs	\$ 211	\$ -	\$ 245	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 457

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

1140100

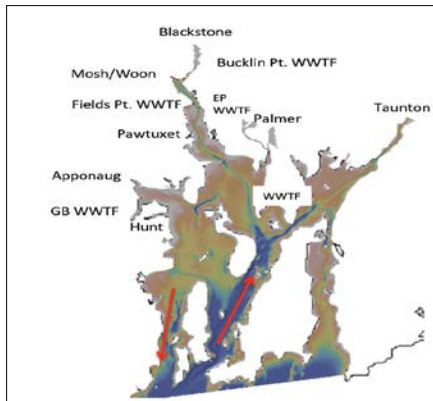
River Model Development

Project Manager: Tom Uva
 Contractor(s): University of RI, Graduate School of Oceanography

Location: Providence, RI
 Project Priority: C

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	March-05	January-18	157 Months	\$525
Construction	N/A	N/A	N/A	N/A
Total Project	March-05	January-18	157 Months	\$525



NBC has partnered with the University of Rhode Island (URI) Graduate School of Oceanography (GSO) to develop the Regional Ocean Modeling System (ROMS) for the Providence and Seekonk Rivers and Upper Narragansett Bay to model the circulation and transport of nutrients. Model development and model runs under varying conditions and loadings to determine the impact of nitrogen loads on the receiving waters are complete. Future work includes incorporation of a biological-oxygen model into ROMS to determine the effectiveness of different alternatives on improving water quality.

Photo: Map of Narraganset Bay showing the freshwater sources to the estuary that are included in the ROMS modeling project

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 1140100

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 56	\$ 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 56
Land	-	-	-	-	-	-	-	-	-
A/E Professional	229	142	-	-	-	-	-	-	371
Other	62	36	-	-	-	-	-	-	98
Total Project Costs	\$ 347	\$ 178	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 525

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

1140200

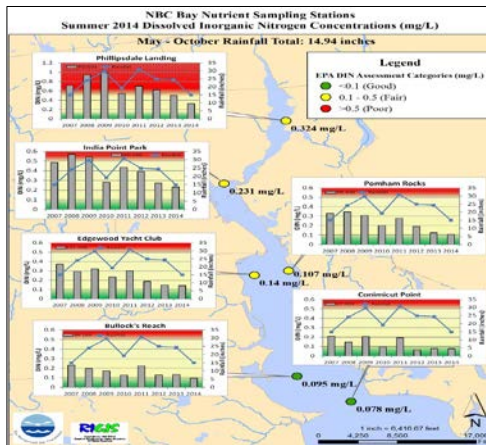
Receiving Water Compliance Study

Project Manager: Thomas Uva
Contractor(s): N/A

Location: NBC Service Area
Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	July-16	January-18	19 Months	\$300
Construction	N/A	N/A	N/A	N/A
Total Project	July-16	January-18	19 Months	\$300



Project 1140200 will evaluate the effect of nitrogen reductions on dissolved oxygen levels in upper Narragansett Bay. The project involves the collection of data and the development of a comprehensive report that will assist NBC with information relative to potential permit requirements. This project also entails the engagement of consultants and legal counsel related to permit requirements that would mandate NBC to make additional capital investments.

Photo: Dissolved inorganic nitrogen concentrations in the upper Bay and their changes over time at the NBC monitoring stations

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -								
A/E Professional	-								
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 1140200

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ 75	\$ 75	\$ -	\$ -	\$ -	\$ -	\$ 150
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	75	75	-	-	-	-	150
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ 150	\$ 150	\$ -	\$ -	\$ -	\$ -	\$ 300

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

1140300

Green House Gas Study

Project Manager: Jim McCaughey
 Contractor(s): N/A

Location: NBC Service Area
 Project Priority: C

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	October-15	December-16	15 Months	\$405
Construction	N/A	N/A	N/A	N/A
Total Project	October-15	December-16	15 Months	\$405



This project will help quantify NBC's overall carbon footprint by measuring green house gas emissions from wastewater collection and treatment operations. NBC's Green House Gas Study will position NBC favorably if NBC is subject to additional /new regulatory requirements related to green house gas emissions.

Photo: Green House Gas collection chamber deployed in treatment tank anoxic zone

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -								
A/E Professional	-								
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 1140300

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 15	\$ 60	\$ 30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 105
Land	-	-	-	-	-	-	-	-	-
A/E Professional	20	40	40	-	-	-	-	-	100
Other	25	115	60	-	-	-	-	-	200
Total Project Costs	\$ 60	\$ 215	\$ 130	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 405

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30438

NBC Interceptor Easements - Abbott Valley Interceptor

Project Manager: Tom Brueckner, P.E.
 Contractor(s): VHB

Location: Cumberland, RI
 Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	October-05	September-15	121 Months	\$788
Construction	September-15	November-16	14 Months	736
Total Project	October-05	November-16	135 Months	\$1,524



Much of the NBC sewer system in Cumberland is located in easements that cross private property. NBC is presently evaluating these easements to determine if there is sufficient access in order to maintain the integrity of the collection system. This project is for an evaluation of the Abbott Valley Interceptor easements. Upon completion of the evaluation, the construction phase of this project will begin which will include clearing the easements in order to provide the necessary access to maintain the collection system.

Photo: Cumberland sewer system easement locations

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30438D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 203	\$ 21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 225
Land	64	89	-	-	-	-	-	-	153
A/E Professional	401	8	-	-	-	-	-	-	409
Other	2	-	-	-	-	-	-	-	2
Total Project Costs	\$ 670	\$ 118	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 788

Projected Expenditures - 30438C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 61	\$ 25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 86
A/E Professional	-	15	10	-	-	-	-	-	25
Construction	-	250	250	-	-	-	-	-	500
Contingency	-	-	50	-	-	-	-	-	50
Other	-	50	25	-	-	-	-	-	75
Total Project Costs	\$ -	\$ 376	\$ 360	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 736

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30500

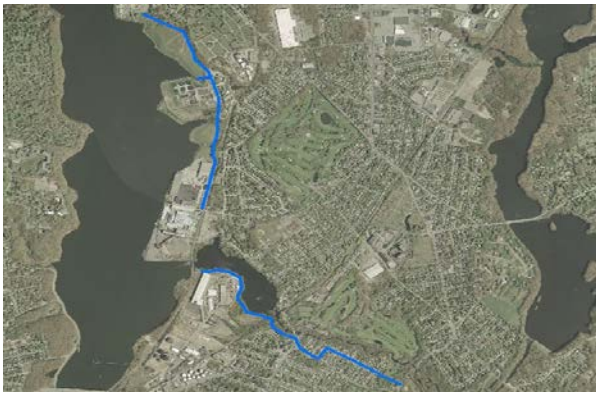
NBC Interceptor Easements - Various Locations

Project Manager: Tom Brueckner, P.E.
Contractor(s): N/A

Location: NBC Service Area
Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	September-16	August-18	23 Months	\$722
Construction	March-18	September-19	18 Months	632
Total Project	September-16	September-19	37 Months	\$1,354



Many of NBC's interceptors are located in overland areas that run through private property. It is difficult to locate and access these easements due to the terrain and overgrown vegetation. The easements will be located through field survey and cleared sufficiently to provide access to maintain NBC's infrastructure. Project 30500 will continue NBC's efforts to locate the interceptors and easements in each of the communities within the NBC service area. As the field surveys begin for the remaining cities and towns, each will be given a unique project number and draw funding from Project 30500.

Photo: Proposed area for the East Providence easement investigation

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30500D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ 22	\$ 56	\$ 22	\$ -	\$ -	\$ -	\$ 100
Land	-	-	-	-	100	-	-	-	100
A/E Professional	-	-	220	240	40	-	-	-	500
Other	-	-	-	20	2	-	-	-	22
Total Project Costs	\$ -	\$ -	\$ 242	\$ 316	\$ 164	\$ -	\$ -	\$ -	\$ 722

Projected Expenditures - 30500C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ 16	\$ 36	\$ -	\$ -	\$ -	\$ 52
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	107	368	25	-	-	500
Contingency	-	-	-	-	60	-	-	-	60
Other	-	-	-	5	15	-	-	-	20
Total Project Costs	\$ -	\$ -	\$ -	\$ 128	\$ 479	\$ 25	\$ -	\$ -	\$ 632

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30501

NBC Interceptor Easements - Blackstone Valley Interceptor

Project Manager: Tom Brueckner, P.E.
 Contractor(s): VHB

Location: Lincoln, RI
 Project Priority: A

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	N/A	N/A	N/A	N/A
Design	July-09	December-15	78 Months	\$498
Construction	February-16	May-17	15 Months	746
Total Project	July-09	May-17	95 Months	\$1,244

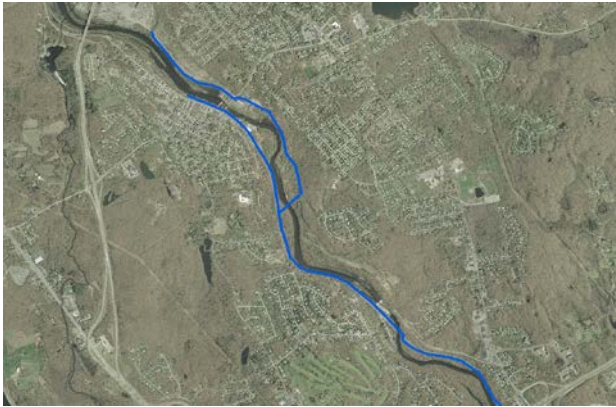


Photo: Blackstone Valley Interceptor in Lincoln

Many of NBC's interceptors are located in overland areas that run through private property. It is difficult to locate and access these easements due to the terrain and overgrown vegetation. The easements will be located through field survey and then cleared sufficiently to provide access to crews and equipment. Project 30501 is to locate manholes and easements on the Blackstone Valley Interceptor in Lincoln and Cumberland. Upon completion of this work, the easement will be cleared to allow access to maintain the sewer.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30501D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 44	\$ 94	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 139
Land	-	100	-	-	-	-	-	-	100
A/E Professional	237	10	-	-	-	-	-	-	247
Other	0	12	-	-	-	-	-	-	12
Total Project Costs	\$ 282	\$ 216	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 498

Projected Expenditures - 30501C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 11	\$ 36	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 47
A/E Professional	-	9	18	-	-	-	-	-	27
Construction	-	-	600	-	-	-	-	-	600
Contingency	-	-	72	-	-	-	-	-	72
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ 20	\$ 726	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 746

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30700D

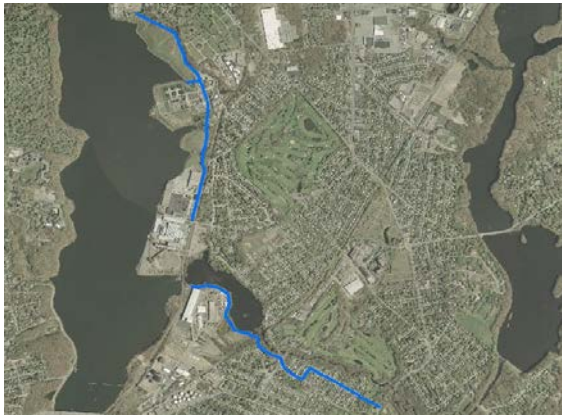
NBC System-Wide Facilities Planning

Project Manager: Tom Brueckner, P.E.
 Contractor(s): N/A

Location: NBC Service Area
 Project Priority: C

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	April-16	April-18	24 Months	\$509
Construction	N/A	N/A	N/A	N/A
Total Project	April-16	April-18	24 Months	\$509



NBC's interceptor sewers convey flow from local sewers in the district's eight cities and towns to the two NBC wastewater treatment facilities. Project 30700 will continue NBC's studies to determine if there is adequate capacity for the next twenty years and if there is any excessive infiltration/inflow (I/I) in NBC's interceptors. As the evaluations begin for the remaining cities and towns, each will be given a unique project number and draw funding from Project 30700.

Photo: Proposed area for the East Providence capacity analysis

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30700D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 11	\$ 70	\$ 28	\$ -	\$ -	\$ -	\$ -	\$ 109
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	32	206	162	-	-	-	-	400
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ 43	\$ 276	\$ 190	\$ -	\$ -	\$ -	\$ -	\$ 509

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

40100P

NBC Facility Electrical Improvements

Project Manager: Tom Brueckner, P.E.
 Contractor(s): N/A

Location: Providence, RI
 Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	June-16	June-17	12 Months	\$130
Design	N/A	N/A	N/A	N/A
Construction	N/A	N/A	N/A	N/A
Total Project	June-16	June-17	12 Months	\$130



Photo: Field's Point WWTF Electrical Substation #1

Several NBC facilities are in need of improvements to their electrical facilities. A Power System Study to evaluate the safety of the existing electrical facilities at the FPWWTF will also be completed under this project. Improvements to the electrical facilities at other NBC locations will also be evaluated under this project as the need arises.

Projected Expenditures - 41000P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 4	\$ 16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20
A/E Professional	-	-	100	-	-	-	-	-	100
Other	-	-	10	-	-	-	-	-	10
Total Project Costs	\$ -	\$ 4	\$ 126	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 130

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

40200

NBC Systemwide Inflow Reduction

Project Manager: Tom Bruckner, P.E.
Contractor(s): N/A

Location: NBC Service Area
Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	September-16	June-20	46 Months	\$330
Construction	June-17	September-20	40 Months	551
Total Project	September-16	September-20	49 Months	\$881



The NBC sewer system is susceptible to inflow from various sources. Inflow is storm water that enters the sewer system during rain events. For separate sewer systems, storm water flow should not be entering the system as these sewers were not designed to accept this flow. This flow is typically from downspouts and sump pumps that are connected to the sanitary sewer. Specific areas where this inflow needs to be addressed are the OF 027 and OF037 CSO overflow areas on the East Side of Providence which were recently separated and the Town of North Providence separate sewer system. Storm water inflow is suspected to occur in the separated systems in other communities within the district. This project will include evaluation, design and construction to eliminate sources of inflow in the separated sewer service areas.

Photo: Downspouts at NBC COB

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 40200D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ 19	\$ 19	\$ 17	\$ 29	\$ -	\$ -	\$ 84
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	24	76	50	96	-	-	246
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ 43	\$ 95	\$ 67	\$ 125	\$ -	\$ -	\$ 330

Projected Expenditures - 40200C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ 6	\$ 46	\$ 32	\$ 50	\$ 12	\$ -	\$ 146
A/E Professional	-	-	3	30	21	33	9	-	96
Construction	-	-	-	80	60	90	30	-	260
Contingency	-	-	-	8	6	-	10	-	24
Other	-	-	-	10	5	10	-	-	25
Total Project Costs	\$ -	\$ -	\$ 9	\$ 174	\$ 124	\$ 183	\$ 61	\$ -	\$ 551

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

40300P

Municipal Sewer Acquisition Impact

Project Manager: Tom Brueckner, P.E.
 Contractor(s): N/A

Location: NBC Service Area
 Project Priority: A

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	July-16	June-17	12 Months	\$296
Design	N/A	N/A	N/A	N/A
Construction	N/A	N/A	N/A	N/A
Total Project	July-16	June-17	12 Months	\$296



Photo: Municipal Sewer Manhole Cover

Legislation has been introduced in the General Assembly that would require NBC to conduct an evaluation of the impacts of the acquisition of municipal lateral sewers by NBC from its member communities. This evaluation would determine the feasibility, cost, regulatory requirements and other impacts on NBC and the municipalities. Upon completion of the study, a report will be prepared recommending if NBC should acquire local sewers in any of the municipalities.

Projected Expenditures - 40300P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ 36	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36
A/E Professional	-	-	250	-	-	-	-	-	250
Other	-	-	10	-	-	-	-	-	10
Total Project Costs	\$ -	\$ -	\$ 296	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 296

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

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30301D

CSO Phase II Facilities Design

Project Manager: Tom Brueckner, P.E.
 Contractor(s): Louis Berger Group

Location: Providence, RI; Central Falls, RI
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	November-06	September-15	107 Months	\$18,805
Construction	N/A	N/A	N/A	N/A
Total Project	November-06	September-15	107 Months	\$18,805



Photo: Proposed Woonasquatucket CSO Interceptor alignment

CSO Phase II is the second phase of NBC's federally mandated CSO Abatement Program. It consists of the construction of two interceptors to convey flows from combined sewer overflows in Providence along the Seekonk and Woonasquatucket Rivers to the Main Tunnel constructed in Phase I. The proposed length of the Woonasquatucket Interceptor is 18,200 feet and the Seekonk Interceptor will be approximately 8,000 feet. Phase II also includes two sewer separation projects in Providence, and a constructed wetlands treatment facility in Central Falls.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30301D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 1,464	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,464
Land	6,322	228	-	-	-	-	-	-	6,550
A/E Professional	10,775	-	-	-	-	-	-	-	10,775
Other	17	-	-	-	-	-	-	-	17
Total Project Costs	\$ 18,577	\$ 228	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,805

Projected Expenditures - Construction

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30301RS

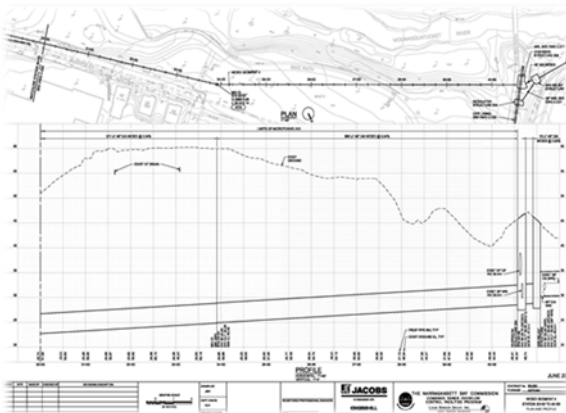
Phase II CSO Facilities Program & Construction Management

Project Manager: Rich Bernier, P.E.
 Contractor(s): Louis Berger Group

Location: N/A
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	September-10	June-16	70 Months	\$19,932
Total Project	September-10	June-16	70 Months	\$19,932



Project 30301RS provides Program and Construction Management of the Phase II CSO Facilities construction program, which consists of fourteen construction projects. This project is currently underway and will continue until Phase II of the CSO Program is complete.

Photo: Plans of the proposed CSO Phase II WCSO alignment

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30301RS

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	17,954	1,978	-	-	-	-	-	-	19,932
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 17,954	\$ 1,978	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,932

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30302C

Phase II CSO Facilities OF 106

Project Manager: Rich Bernier, P. E.
Contractor(s): JH Lynch & Sons, Inc.

Location: Central Falls, RI
Project Priority: A

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	March-12	July-15	40 Months	\$5,518
Total Project	March-12	July-15	40 Months	\$5,518



CSO Phase II is the second phase of NBC's CSO Abatement Program. It consists of the construction of two interceptors to convey flows from combined sewer overflows in Providence along the Seekonk and Woonasquatucket Rivers to the Main Tunnel constructed under Phase I, two sewer separation projects in Providence and a constructed wetlands facility in Central Falls. This project (30302C) is for the construction of the wetlands facility to treat the combined sewer overflow from OF 106 in Central Falls.

Photo: Wetlands Facility OF 106 in Central Falls

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30302C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 225	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 225
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	5,123	50	-	-	-	-	-	-	5,173
Contingency	100	-	-	-	-	-	-	-	100
Other	20	-	-	-	-	-	-	-	20
Total Project Costs	\$ 5,468	\$ 50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,518

Operating Impact

	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
	N/A	\$ 49	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$ 348

Note: Cash Flow Basis in Thousands

30303C

Phase II CSO Facilities WCSOI Main

Project Manager: Rich Bernier, P.E.
Contractor(s): Barletta Heavy/Shank Balfour Beatty

Location: Providence, RI; Central Falls, RI
Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	September-11	June-16	58 Months	\$78,448
Total Project	September-11	June-16	58 Months	\$78,448



CSO Phase II is the second phase of NBC's CSO Abatement Program. It consists of the construction of two interceptors to convey flows from the combined sewer overflows in Providence along the Seekonk and Woonasquatucket Rivers to the Main Tunnel constructed in Phase I, two sewer separation projects in Providence and a constructed wetlands treatment facility in Central Falls. This project (30303C) will construct a 19,200 foot long Woonasquatucket CSO Interceptor (WCSOI) along the Woonasquatucket River along with a drop shaft and associated adit to the main spine tunnel with gate and screening structures.

Photo: Bar Screens in Gate and Screening Structure

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30303C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 2,695	\$ 250	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,945
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	71,987	359	-	-	-	-	-	-	72,346
Contingency	-	2,878	-	-	-	-	-	-	2,878
Other	264	15	-	-	-	-	-	-	279
Total Project Costs	\$ 74,946	\$ 3,502	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 78,448

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	\$ 10	\$ 20	\$ 22	\$ 24	\$ 26	\$ 28	\$ 30	\$ 160

Note: Cash Flow Basis in Thousands

30304C

Phase II CSO Facilities SCSOI MAIN

Project Manager: Rich Bernier, P.E.
 Contractor(s): Northeast Remsco

Location: Providence, RI; Central Falls, RI
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	February-12	December-15	47 Months	\$20,906
Total Project	February-12	December-15	47 Months	\$20,906



Photo: Micro Tunnel Boring Machine Installation

CSO Phase II is in the second phase of NBC's CSO Abatement Program. It consists of the construction of two interceptors to convey flows from combined sewer overflows in Providence along the Seekonk and Woonasquatucket Rivers to the Main Tunnel constructed in Phase I, two sewer separation projects in Providence and a constructed wetlands facility in Central Falls. This project (30304C) will construct an 8,000 foot long CSO Interceptor (SCSOI) along the Seekonk River.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30304C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 804	\$ 179	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 982
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	19,256	168	-	-	-	-	-	-	19,424
Contingency	-	-	-	-	-	-	-	-	-
Other	-	500	-	-	-	-	-	-	500
Total Project Costs	\$ 20,060	\$ 846	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,906

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	\$ 5	\$ 10	\$ 11	\$ 12	\$ 13	\$ 14	\$ 15	\$ 80

Note: Cash Flow Basis in Thousands

30306C

Phase II CSO Facilities OF 037 West

Project Manager: Rich Bernier, P.E.
 Contractor(s): CB Utility

Location: Providence, RI
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	May-11	July-15	51 Months	\$10,096
Total Project	May-11	July-15	51 Months	\$10,096



Photo: CSO 037 at Cemetary Street

CSO Phase II is the second phase of NBC's CSO Abatement Program. It consists of the construction of two interceptors to convey flows from combined sewer overflows in Providence along the Seekonk and Woonasquatucket Rivers to the Main Tunnel constructed in Phase I, two sewer separation projects in Providence and a constructed wetlands facility in Central Falls. This project (30306C) is for the separation of combined sewers in the North Main Street area of the East Side of Providence from Colonial Road to Hillside Avenue.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30306C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 862	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 862
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	8,316	51	-	-	-	-	-	-	8,367
Contingency	-	-	-	-	-	-	-	-	-
Other	868	-	-	-	-	-	-	-	868
Total Project Costs	\$ 10,046	\$ 51	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,096

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30307C

Phase II CSO Facilities OF 037 South

Project Manager: Rich Bernier, P.E.
Contractor(s): John Rocchio Corporation

Location: Providence, RI
Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	January-13	January-16	36 Months	\$10,094
Total Project	January-13	January-16	36 Months	\$10,094



Photo: Fourth Street OF 037 South Sewer Separation location

CSO Phase II is the second phase of NBC's CSO Abatement Program. It consists of the construction of two interceptors to convey flows from combined sewer overflows in Providence along the Seekonk and Woonasquatucket Rivers to the Main Tunnel constructed in Phase I, two fewer sewer separation projects in Providence and a constructed wetlands facility in Central Falls. This project (30307C) is for the separation of combined sewers east of North Main Street from Colonial to Fourth Street.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30307C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 592	\$ 41	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 633
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	6,874	937	-	-	-	-	-	-	7,811
Contingency	-	-	-	-	-	-	-	-	-
Other	650	1,000	-	-	-	-	-	-	1,650
Total Project Costs	\$ 8,117	\$ 1,977	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,094

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30308C

Phase II CSO Facilities OF 037 North

Project Manager: Rich Bernier, P.E.
 Contractor(s): DiGregorio Corporation

Location: Providence, RI
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	February-13	February-16	37 Months	\$9,177
Total Project	February-13	February-16	37 Months	\$9,177



CSO Phase II is the second phase of NBC's CSO Abatement Program. It consists of the construction of two interceptors to convey flows from combined sewer overflows in Providence along the Seekonk and Woonasquatucket Rivers to the Main Tunnel constructed in Phase I, two sewer separation projects in Providence and a constructed wetlands facility in Central Falls. This project (30308C) is for the separation of combined sewers east of North Main Street from Fifth to Hillside.

Photo: Fifth Street. Proposed OF 037 Sewer Separation location

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30308C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 482	\$ 6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 488
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	7,315	76	-	-	-	-	-	-	7,390
Contingency	-	-	-	-	-	-	-	-	-
Other	887	412	-	-	-	-	-	-	1,299
Total Project Costs	\$ 8,683	\$ 493	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,177

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30800

CSO Phase III Facilities

Project Manager: Tom Brueckner, P.E.
 Contractor(s): MWH

Location: Pawtucket, RI
 Project Priority: A

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	August-13	December-35	273 Months	\$83,510
Construction	June-18	December-38	251 Months	731,490
Total Project	August-13	December-38	309 Months	\$815,000



CSO Phase III is the third phase of NBC's federally mandated CSO Abatement Program and includes the construction of a tunnel in Pawtucket totaling approximately 13,000 feet in length, three CSO Interceptors totaling approximately 14,500 feet in length and four sewer separation projects. Total cost estimates for CSO Phase III are based on pre-design estimates. A reevaluation will be conducted to determine the expected improvement in water quality as a result of that work, if Phase III needs to be completed and, if so, is the currently approved plan still the most cost effective approach.

Photo: Proposed alignment for the Pawtucket CSO Tunnel

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30800D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 264	\$ 79	\$ 101	\$ 78	\$ 265	\$ 211	\$ -	\$ 1,003	\$ 2,000
Land	-	-	-	-	-	4,000	-	4,000	8,000
A/E Professional	1,491	2,100	11,991	9,000	11,427	-	-	36,091	72,100
Other	10	-	60	330	310	-	-	700	1,410
Total Project Costs	\$ 1,765	\$ 2,179	\$ 12,152	\$ 9,408	\$ 12,002	\$ 4,211	\$ -	\$ 41,794	\$ 83,510

Projected Expenditures - 30800C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100	\$ 240	\$ 3,060	\$ 3,400
A/E Professional	-	-	-	-	-	1,000	8,200	63,800	73,000
Construction	-	-	-	-	-	-	57,000	525,090	582,090
Contingency	-	-	-	-	-	-	-	73,000	73,000
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,100	\$ 65,440	\$ 664,950	\$ 731,490

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

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70800

Omega Pump Station Improvements

Project Manager: Tom Brueckner, P.E.
Contractor(s): N/A

Location: East Providence, RI
Project Priority: C

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	July-14	July-15	12 Months	\$10
Design	March-15	October-15	7 Months	107
Construction	October-15	April-16	6 Months	84
Total Project	July-14	April-16	21 Months	\$201



Several pieces of equipment at the Omega Pump Station need to be replaced as they are obsolete or no longer function. This project will evaluate replacement of the pump motor control center, sewage pump 4 and the bar screen. The evaluation will also include a study to increase the operating efficiency of the station and piping changes to improve operating flexibility.

Photo: Omega Pumping Station

Projected Expenditures - 70800P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10

Projected Expenditures - 70800D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 12	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	45	-	-	-	-	-	-	45
Other	-	50	-	-	-	-	-	-	50
Total Project Costs	\$ -	\$ 107	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 107

Projected Expenditures - 70800C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	75	-	-	-	-	-	-	75
Contingency	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ 84	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 84

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

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Projects 304 M Summary

CSO Interceptor and Cleaning Projects

Project Manager: Meg Goulet, P.E.
 Contractor(s): Various

Location: Narragansett Bay Commission Service Area
 Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	July-09	Ongoing	Ongoing	\$3,574
Total Project	July-09	Ongoing	Ongoing	\$3,574



Photo: Inland Waters Cleaning

The 304 M projects continue NBC's program to clean and inspect NBC interceptors as needed. The TV inspections assist in determining pipe conditions and developing solutions to any problems which may be identified. Based on completed inspections to date, the cleaning is needed to remove accumulated grit. As new inspection and cleaning projects are identified from the TV inspections, they will be given a unique project number and draw funding from the funds available in Project 30400M.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 304 M Summary

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 15	\$ 84	\$ 84	\$ 84	\$ 84	\$ 84	\$ 84	\$ 84	\$ 606
A/E Professional	-	-	-	-	-	-	-	-	-
Inspect/Cleaning	50	342	342	342	342	342	342	342	2,445
Contingency	-	-	-	-	-	-	-	-	-
Other	9	74	74	74	74	74	74	74	523
Total Project Costs	\$ 74	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 3,574

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

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30400C

Repair and Construction of CSO Interceptors

Project Manager: Rich Bernier, P.E.
 Contractor(s): Various

Location: Narragansett Bay Commission Service Area
 Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	July-01	Ongoing	Ongoing	\$3,000
Total Project	July-01	Ongoing	Ongoing	\$3,000

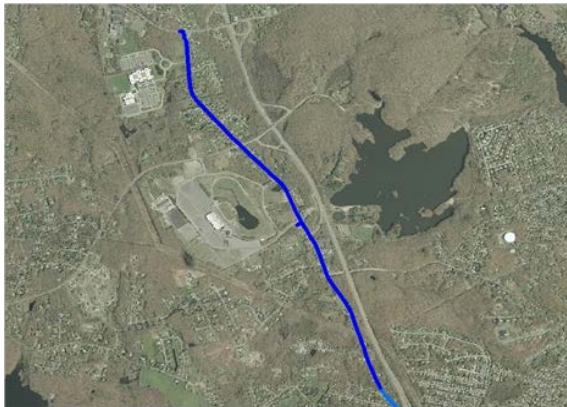


Photo: Proposed portion of Lincoln Interceptor Replacement

Project 30400C estimates the unknown costs of interceptor repair and construction resulting from NBC's inspection and cleaning projects and emergency situations. Interceptor repair and construction projects result from such issues as root intrusion, structural damage, odor control, aging infrastructure, inaccessible structures, pipe damage and emergency situations. As new repair and construction projects are identified, they are given a unique project number and draw funding from the funds available in Project 30400C.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30400C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 75	\$ 75	\$ 150
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	1,250	1,250	2,500
Contingency	-	-	-	-	-	-	150	150	300
Other	-	-	-	-	-	-	25	25	50
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,500	\$ 1,500	\$ 3,000

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30421

Louisquisset Pike Interceptor Replacement

Project Manager: Tom Brueckner, P.E.
 Contractor(s): Beta Engineering

Location: Lincoln, RI
 Project Priority: C

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	N/A	N/A	N/A	N/A
Design	May-07	July-09	26 Months	\$241
Construction	August-15	June-17	16 months	\$2,898
Total Project	May-07	June-17	122 Months	\$3,139



The Facilities Plan for project 30421 identified wet weather capacity problems with the Louisquisset Interceptor and recommended that the southern half of the interceptor in Lincoln be replaced with a larger pipe to accommodate present and projected flows.

Photo: Lincoln Interceptor Replacement Location

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30421D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 40	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 40
Land	-	-	-	-	-	-	-	-	-
A/E Professional	155	-	-	-	-	-	-	-	155
Other	46	-	-	-	-	-	-	-	46
Total Project Costs	\$ 241	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 241

Projected Expenditures - 30421C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 60	\$ 48	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 108
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	29	21	-	-	-	-	-	50
Contingency	-	1,050	1,450	-	-	-	-	-	2,500
Other	-	-	240	-	-	-	-	-	240
Total Project Costs	\$ -	\$ 1,139	\$ 1,759	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,898

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30444

Mosshassuck Valley Interceptor

Project Manager: Tom Brueckner, P.E.
 Contractor(s): Louis Berger Group

Location: Providence, RI
 Project Priority: C

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	May-06	October-06	6 Months	\$22
Design	June-12	September-15	40 Months	385
Construction	November-15	April-17	17 Months	3,984
Total Project	May-06	April-17	133 Months	\$4,391



Inspection of 2,600 feet of the Mosshassuck Valley Interceptor from Higginson Street in Central Falls to Lockbridge Street in Pawtucket revealed that this line has sunk from its original grade at numerous points by as much as 2.5 feet. This settling is causing maintenance problems and the accumulation of grease which may result in blockage of the sewer. This project would replace this line in the public right of way.

Photo: Portion of the Mosshassuck Valley Interceptor to be replaced

Projected Expenditures - 30444P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2
A/E Professional	20	-	-	-	-	-	-	-	20
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ 22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22

Projected Expenditures - 30444D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 43	\$ 39	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 82
Land	-	75	-	-	-	-	-	-	75
A/E Professional	189	32	-	-	-	-	-	-	221
Other	-	7	-	-	-	-	-	-	7
Total Project Costs	\$ 232	\$ 153	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 385

Projected Expenditures - 30444C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 32	\$ 47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 79
A/E Professional	-	9	26	-	-	-	-	-	35
Construction	-	810	2,690	-	-	-	-	-	3,500
Contingency	-	-	350	-	-	-	-	-	350
Other	-	5	15	-	-	-	-	-	20
Total Project Costs	\$ -	\$ 856	\$ 3,128	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,984

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30457

Providence River Siphon Replacement

Project Manager: Tom Brueckner, P.E.
 Contractor: N/A

Location: Providence, RI
 Project Priority: B

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	March-13	May-15	26 Months	\$199
Design	July-15	June-16	12 Months	175
Construction	April-16	February-17	10 Months	805
Total Project	March-13	February-17	48 Months	\$1,179



Photo: Providence River Siphon House

The existing Providence River Siphon is over 100 years old. Should it fail, there is no back up sewer to convey flow from the East Side of Providence to the Allen's Avenue interceptor. This project will evaluate if replacing or rehabilitating this siphon is necessary to ensure continuous uninterrupted service.

Projected Expenditures - 30457P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 66
A/E Professional	123	-	-	-	-	-	-	-	123
Other	10	-	-	-	-	-	-	-	10
Total Project Costs	\$ 199	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 199

Projected Expenditures - 30457D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 30
Land	-	30	-	-	-	-	-	-	30
A/E Professional	-	90	-	-	-	-	-	-	90
Other	-	25	-	-	-	-	-	-	25
Total Project Costs	\$ -	\$ 175	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 175

Projected Expenditures - 30457C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 18	\$ 27	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 45
A/E Professional	-	9	16	-	-	-	-	-	25
Construction	-	-	600	-	-	-	-	-	600
Contingency	-	-	60	-	-	-	-	-	60
Other	-	-	75	-	-	-	-	-	75
Total Project Costs	\$ -	\$ 27	\$ 778	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 805

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30458

Douglas / Branch Avenue Interceptor Relief

Project Manager: Tom Brueckner, P.E.
 Contractor: N/A

Location: Providence, RI
 Project Priority: B

Total Project Duration/Cost

Project Phase	Start Date	Completion Date	Project Duration	Cost (in Thousands)
Planning	April-16	March-17	11 Months	\$78
Design	June-17	March-19	21 Months	677
Construction	February-19	January-21	23 Months	6,283
Total Project	April-16	January-21	58 Months	\$7,038



Photo: Branch Avenue Interceptor improvement location

The Branch Avenue Interceptor is subject to surcharging in wet weather which may result in Sanitary Sewer Overflows. This project is to evaluate improvements that should be made to the Interceptor to eliminate the surcharging. Design and construction of the improvements would be done after the evaluation is complete.

Projected Expenditures - 30458P

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 7	\$ 2	\$ 14	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23
A/E Professional	-	-	50	-	-	-	-	-	50
Other	-	-	5	-	-	-	-	-	5
Total Project Costs	\$ 7	\$ 2	\$ 69	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 78

Projected Expenditures - 30458D

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ 3	\$ 36	\$ 68	\$ -	\$ -	\$ -	\$ 107
Land	-	-	-	-	100	-	-	-	100
A/E Professional	-	-	-	270	180	-	-	-	450
Other	-	-	-	15	5	-	-	-	20
Total Project Costs	\$ -	\$ -	\$ 3	\$ 321	\$ 353	\$ -	\$ -	\$ -	\$ 677

Projected Expenditures - 30458C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ 53	\$ 258	\$ 158	\$ -	\$ 468
A/E Professional	-	-	-	-	50	120	70	-	240
Construction	-	-	-	-	-	3,050	1,950	-	5,000
Contingency	-	-	-	-	-	-	500	-	500
Other	-	-	-	-	-	-	75	-	75
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ 103	\$ 3,428	\$ 2,753	\$ -	\$ 6,283

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30459C

Improvements to Interceptors FY 2015

Project Manager: Rich Bernier, P.E.
 Contractor: N/A

Location: Providence, RI
 Project Priority: A

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	May-14	December-16	32 Months	\$1,218
Total Project	May-14	December-16	32 Months	\$1,218



This project will line 4,100 linear feet of sewer pipe and do various spot repairs to interceptors on Mineral Spring Avenue and Smith Street in North Providence as well as miscellaneous streets in Providence.

Photo: Lining at an interceptor improvement location

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30459C

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ 37	\$ 51	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 88
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	995	5	-	-	-	-	-	1,000
Contingency	-	120	-	-	-	-	-	-	120
Other	10	-	-	-	-	-	-	-	10
Total Project Costs	\$ 47	\$ 1,166	\$ 5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,218

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

30462C

Improvements to Interceptors FY 2016

Project Manager: Rich Bernier, P.E.
Contractor: N/A

Location: Providence, RI
Project Priority: B

Total Project Duration/Cost

<u>Project Phase</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Project Duration</u>	<u>Cost (in Thousands)</u>
Planning	N/A	N/A	N/A	N/A
Design	N/A	N/A	N/A	N/A
Construction	April-16	July-18	27 Months	\$1,327
Total Project	April-16	July-18	27 Months	\$1,327



Photo: Manhole along river

Project 30462C will clean, inspect and rehabilitate large diameter pipes in the Bucklin Point service area. Included in this contract will be the rehabilitation of the Seekonk River Siphon Inlet Chamber.

Projected Expenditures - Planning

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - Design

Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Land	-	-	-	-	-	-	-	-	-
A/E Professional	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Projected Expenditures - 30462C

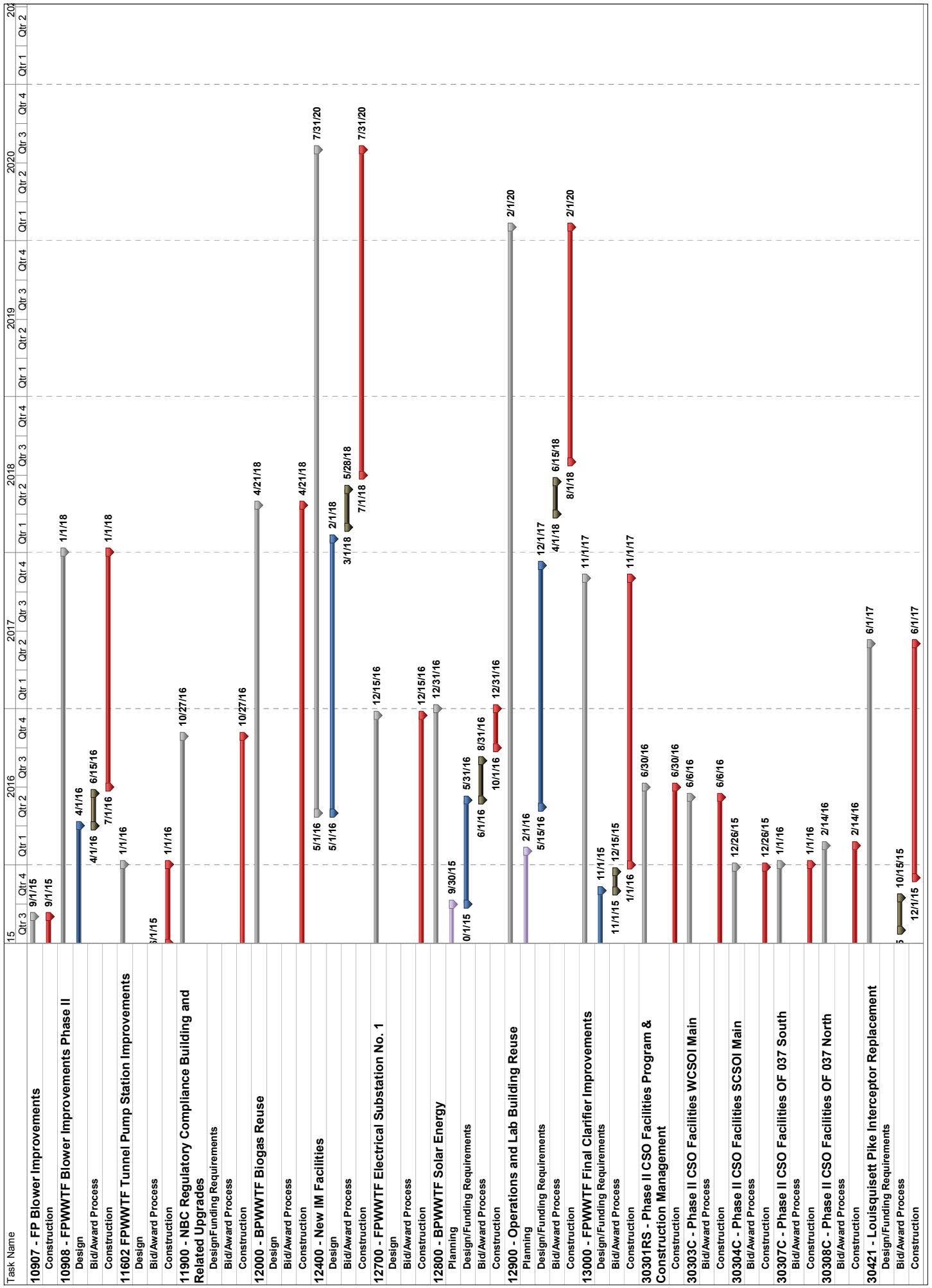
Cost Category	Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
Administrative	\$ -	\$ 4	\$ 101	\$ 2	\$ -	\$ -	\$ -	\$ -	\$ 107
A/E Professional	-	-	-	-	-	-	-	-	-
Construction	-	-	950	-	50	-	-	-	1,000
Contingency	-	-	120	-	-	-	-	-	120
Other	-	-	100	-	-	-	-	-	100
Total Project Costs	\$ -	\$ 4	\$ 1,271	\$ 2	\$ 50	\$ -	\$ -	\$ -	\$ 1,327

Operating Impact

Pre FY 16	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Post FY 21	Total
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: Cash Flow Basis in Thousands

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Task Name	2015				2016				2017				2018				2019				2020					
	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
30438 - Interceptor Easements																										
AVI Easements																										
AVI Design																										
AVI Bid/Award Process																										
AVI Construction																										
30444 - Moshassuck Valley Interceptor																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
30457 - Providence River Siphon Replacement																										
Planning																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
30458 - Douglas/Branch Avenue Interceptor Relief																										
Planning																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
30459 - Improvements to Interceptors FY 2015																										
Bid/Award Process																										
Construction																										
30462 - Improvements to Interceptors FY 2016																										
Bid/Award Process																										
Construction																										
30500 - NBC Interceptor Easements																										
Design/Funding Requirements																										
Construction																										
30501 - Interceptor Easements - NBC BVI																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
30700D - NBC System-Wide Facilities Planning																										
Design/Funding Requirements																										
30800 - CSO Phase III Facilities																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
40200 - NBC Systemwide Inflow Reduction Program																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
70800 - Omega Pump Station Improvements																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
80900 - BPWWTF Nitrogen Removal Facilities																										
Design/Funding Requirements																										
Bid/Award Process																										
Construction																										
81000 - BP UV Disinfection Improvements																										
Design/Funding Requirements																										
81300 - BPWWTF Flood Protection																										
Bid/Award Process																										
construction																										