NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL ENGINEERING

New York City's Combined Sewer Overflow Program

4th Quarterly Report - Year 2001

January 2002

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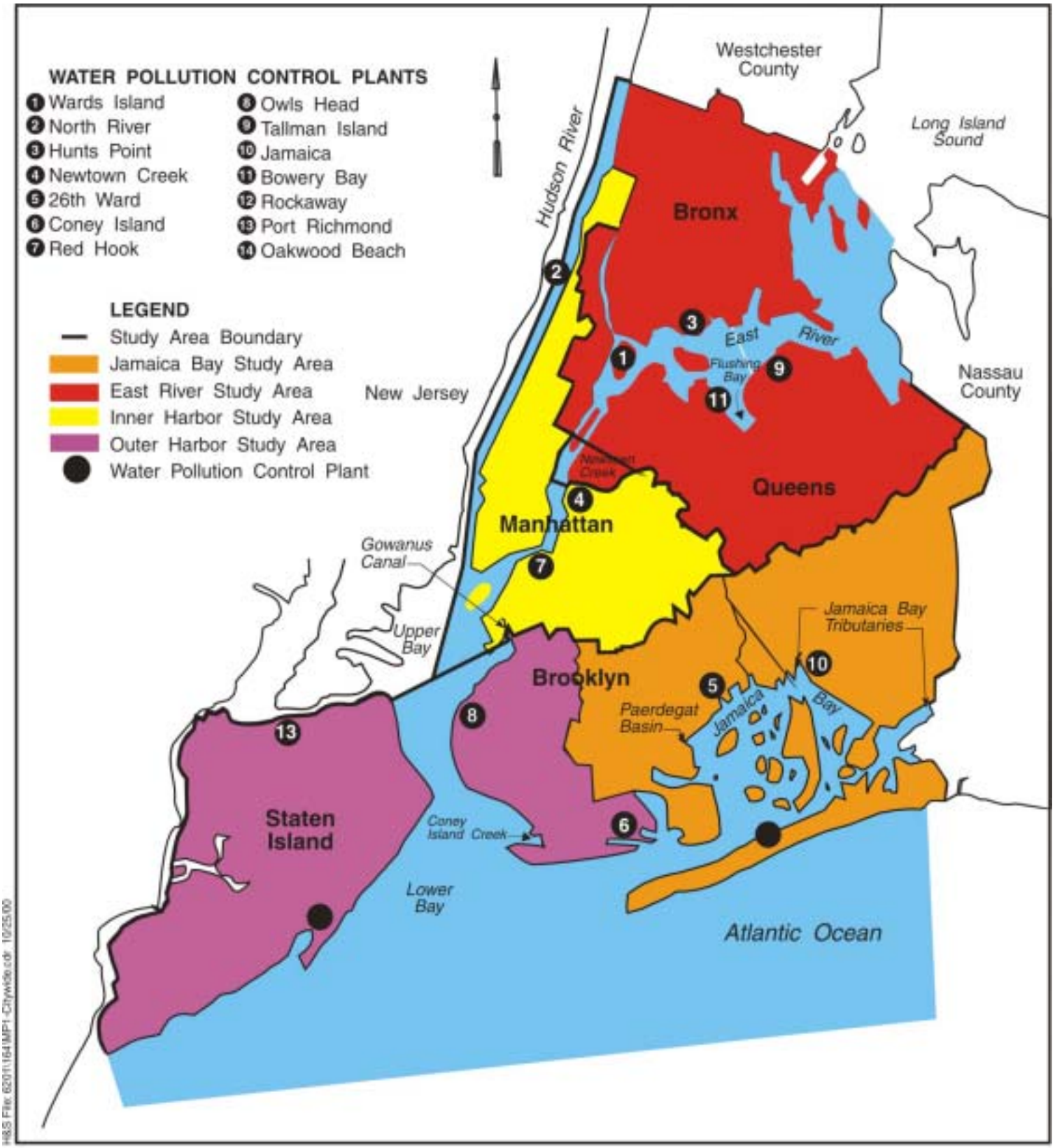
I. Introduction

The City of New York is primarily served by a combined sewer system. Approximately 70% of the City is comprised of combined sewers with 4,800 miles of combined sewers within the five boroughs. The sewer system drains some 200,000 acres and serves a population of about 7 million. Approximately 450 outfalls are permitted to discharge during wet-weather through combined-sewer overflows (CSOs) to the receiving waters of the New York Harbor. Although these discharges do not represent a major source of pollution to the harbor on a long-term basis, they can result in local water-quality problems such as periodically high levels of coliform bacteria, nuisance levels of floatables, depressed dissolved oxygen, and, in some cases, sediment mounds and unpleasant odors.

The NYC Department of Environmental Protection (DEP) is committed to improving water quality and achieving the maximum potential uses of the region's waters, and to maintaining compliance with the applicable regulations. The City has committed billions of dollars for improved pollution-control facilities, water-quality monitoring programs, and scientific and engineering investigations of innovative and cost-effective pollution-control alternatives. As a result, water quality has improved dramatically over the past 10 years.

One of the City's major initiatives to improving local receiving water quality is the $1.8 billion Citywide CSO Program. For this program the City has been divided into eight (8) areas, which together cover the entire harbor area. Four (4) area-wide project areas were developed (East River, Jamaica Bay, Inner Harbor, and Outer Harbor) and four (4) tributary projects areas were defined (Flushing Bay, Paerdegat Basin, Newtown Creek, and the Jamaica Tributaries) as shown in Figure 1.

This quarterly report summarizes recent progress by the City in its efforts to plan and construct the recommended CSO facilities under the Citywide CSO Program. This report covers a period from October 1, 2001 through December 31, 2001.



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DEP

CSO Study Area Locations

City-Wide CSO Facility Planning

Figure 1

II. Project Progress for Comprehensive Citywide CSO Project

A.) Flushing Bay

- **Flushing Bay CSO Retention Facility**

The Flushing Bay CSO Retention Facility is an underground storage tank, which will have a storage capacity of 43 million gallons, 28 MG in the tank and 15 MG in the upstream sewers. The facility collects flow from the system tributary to the "CS-4" outfall, which discharges to the head of Flushing Creek. The elements of the facility include:

- Relocation of ball fields in Kissena Corridor
- Rerouting of Park Drive East CSO line inside the construction site and construction of the effluent channel
- Phase 1 construction of the underground structural elements of the tank
- Phase 2 construction of the mechanical and above-ground portion of the facility
- Construction of tide gates on the tank outfall sewer and construction of ball field

Design

Design has been completed for all elements**.**

Construction

Construction has been completed for the relocation of ball fields and the rerouting of sewers. Phase 1 construction (Contract CS4-3) for the tank was substantially completed as of August 17, 2001. Bids were opened for the Phase 2 construction contracts. The Electrical, HVAC and Plumbing Contracts have been awarded and also registered. The contract for CS4-4G (General Contract) was awarded to E. E. Cruz on November 21, 2001. Phase 2 construction is projected to be complete for final acceptance by December 2004.

- **Corona Avenue Vortex Facility**

The Corona Avenue Vortex Facility includes three vortex units operating in parallel in an underground facility in Corona Avenue, Queens. The three units treat flow diverted from the lower deck of the "CS-3" outfall (permitted CSO outfall BB–006 in the Bowery Bay WPCP system). The overflow from the facility is returned to the CSO outfall, and the underflow (foul waste) is carried to the 108th Street Pumping Station that pumps the flow to the high level interceptor**.**

Construction

Construction is substantially complete. The facility has been on-line since November 1997. A few punch list items remain to be completed by the contractor.

Monitoring Program

The two-year sampling program began in March 2000. To date, nine water quality sampling events have been completed. The program was originally to include 15 sampling events; however, additional events are now planned to allow testing of the vortex units individually for a number of storms. To date, thirteen floatable sampling events have been completed. An interim report on the sampling and monitoring was submitted on January 17, 2001. A second interim report was submitted on July 31, 2001 and a third interim report is currently being prepared.

Table 1

Flushing Bay CSO Project

Plan Elements:	Corona Avenue Vortex Facility	Flushing Bay CSO Retention Facility
Location:	Corona Avenue, Queens	Intersection of College Point Boulevard and Avery Avenue, Queens
Actions:	Design and construction of three underground vortex units to treat CSO diverted from the lower deck of the "CS-3" outfall.	Design and construction of a 43 MG storage facility which includes a 28 MG underground storage tank and 15 MG in-line storage in upstream sewers. The facility collects flow from the system tributary to the "CS-4" outfall.
Cost:	$33,000,000	$291,000,000
Status:	Construction – substantially complete	Bids opened for Phase 2, construction contracts E, H and P awarded, contract G awarded on November 27, 2001.
Other Issues:	Monitoring program – ongoing; contracts for final design of an odor treatment system at the facility and for final design of modifications at the facility are completed and are awaiting final Department review then bidding.	Contract change orders for additional work are in progress.

B.) Paerdegat Basin

The Paerdegat Basin CSO Retention Facility is located in southeastern Brooklyn and receives combined sewer overflows from a drainage area of approximately 6,000 acres. The facility consists of a four (4) bay underground storage tank, which will have storage capacity of 30 million gallons, 20 MG in the tanks and 10 MG in the influent channels. The upstream combined sewers can store additional 20 million gallons. The stored CSO is pumped back to the Coney Island WPCP for treatment after each rain event.

The elements of the facility include the following design and construction phases:

- Phase IA (Contract 4A) – Influent Channels
- Phase II (Contract 4B) – Foundations and Substructures – underground structural elements
- Phase III (Contracts 5G, H, P & E) – Structures and Equipment – aboveground buildings and equipment
- Phase IV (Contract 6) – Natural Area Park Restoration

- **Phase IA – Influent Channels**

Design

Design was completed in 1997**.**

Construction

Construction of the influent channels to the CSO facility is ongoing. Completion of contract work is projected for January 2002.

- **Phase II - CSO Facility Foundations and Substructures**

Design

Final design work for Phase II – CSO Facility Foundations and Substructures has been completed. The project was advertised on August 7, 2001 and the bids opened on October 11, 2001. The contract has not been awarded as yet.

Dredging

A Notice of Complete Application was issued by NYSDEC on December 13, 2001 for the Paerdegat Basin dredging permit. The Notice was advertised in the New York Daily News the week of December 17, 2001 for a 30-day public comment. If the public hearing is not required, a decision is due within 90 days from the date of the Notice.

- **Phase III – Structures and Equipment**

Meetings

Principal meetings held during this report period are as follows:

- Progress meetings with DEP were held during this period. The meetings took place on October 24 and November 28, 2001.

Design

Final design work for Phase III, Structures and Equipment, continues.

- **Phase IV – Natural Area Park Restoration**

Design

This phase will be designed in the future.

Table 2

Paerdegat Basin CSO Project

	Phase IA	*Phase II*	*Phase III*	*Phase IV*
Plan Elements:	Influent Channels	Foundations and Substructures	Structures and Equipment	Natural Area Park Restoration
Location:	Ralph Avenue and Flatlands Avenue, Brooklyn	Ralph Avenue and Flatlands Avenue, Brooklyn	Ralph Avenue and Flatlands Avenue, Brooklyn	Ralph Avenue and Flatlands Avenue, Brooklyn
Actions:	Construction of the influent channels to the CSO facility	Underground structural elements	Aboveground buildings and equipment	Park extending on both sides of Paerdegat Basin.
Cost:	$9,000,000	$145,809,424	$130,026,844	$8,000,000
Status:	Construction completion is projected for January 2002.	Advertised on 8/07/01. Bids opened on 10/11/01. Construction contract not yet awarded.	Final Design work is in progress.	This phase will be designed in the future.
Other Issues:		Dredging permit is required prior to construction.		

C.) Inner Harbor

The Inner Harbor CSO Facility Planning area consists of the North River, Newtown Creek, and Red Hook WPCP drainage areas. The facility plan concluded that CSOs in the Inner Harbor do not contribute to dissolved oxygen and coliform problems in the open water areas of the Hudson River, Lower East River, and Upper Bay. Therefore, consistent with the EPA's Nine Minimum Controls, the recommended elements of the facility plan for the open waters consists of:

- Regulator Improvements
- Throttling Facilities
- In-Line CSO Storage

In contrast to open waters, in Gowanus Canal, CSOs have a significant impact on numerical water quality limits for dissolved oxygen. The recommended plan for Gowanus included:

- Reactivate the Flushing tunnel
- Dredge the canal

- **Open Waters**

Meetings

Two progress meetings between Hazen and Sawyer and DEP were held during this period. The meetings took place on October 18 and November 16, 2001.

Final Design

In the final design contract for Inner Harbor, the following three elements have been targeted in order to achieve the goals of reducing the magnitude, frequency, and duration of CSO discharges:

- Phase I – Regulator Improvements
- Phase II – Throttling Facilities (Interceptor Storage)
- Phase III – In-Line CSO Storage (Inflatable Dams)

Phase I

Phase I will provide improvements to 72 regulators in the Inner Harbor. Added to the 22 regulators that have already been upgraded to fixed orifices, and the 30 locations where the Department is currently installing outfall alarms, a total of 124 regulators are being improved in the Inner Harbor area. The breakdown is as follows:

- In the North River drainage area, 9 regulators are slated for outfall alarms (7 are in operation, 2 more are to be installed) and 33 regulators have been or will be converted to

fixed orifices. Of these 33, 15 were converted under the NYSDOT's Route 9A Reconstruction Project; the other 18 will be converted under Phase I.

- In the Newtown Creek Manhattan drainage area, 12 regulators will have outfall alarms and 29 regulators have been or will be converted to fixed orifices. Of these 29, 7 were converted under the Route 9A Reconstruction Project; the other 22 will be converted under Phase I.

- In the Newtown Creek Brooklyn drainage area, 6 regulators have been identified for installation of outfall alarms and 14 regulators will be converted to fixed orifices. All 14 regulators will be converted under Phase I.

- In the Red Hook drainage area, 3 regulators have been retrofitted with outfall alarms and 18 regulators will be converted to fixed orifices. All 18 regulators will be converted under Phase I.

Improvements under Phase I include plank guide and manhole rung replacement, sluice opening enlargement to a minimum of 12", termination of all water service connections, improved/enlarged access to the regulators, and the conversion of all sluice gates to manual operation for a fixed orifice condition. Hand-held hydraulic-powered valve turners will be supplied to maintenance crews to assist in sluice gate operation.

The 90% final design submittal was delivered to DEP on November 1. Review comments were received by Hazen and Sawyer and are being incorporated into the final plans. Remaining issues to be resolved include coordination with NYCDOT for lane closures required for construction, and coordination with agencies on whose property the regulators lie.

Phase II

Phase II, will provide a new throttling facility for the North River WPCP. New throttling facilities are also being constructed at the Manhattan Pumping Station and Newtown Creek WPCP, both of which are being designed and constructed under the Newtown Creek WPCP upgrade work. The Newtown Creek throttling facility is included in Contract 30 for the Newtown Creek WPCP upgrade and is currently under construction. The Manhattan Pumping Station throttling facility is included in Contract 40, which is currently at 90% completion.

Design on Phase II has continued, assuming the existing stairway shaft to the interceptor will be used as the construction passageway. A topographic survey of the proposed construction area was conducted. Appointment of a contractor to perform geotechnical investigations (three boreholes) is underway. The structural design will be undertaken after the results of the geotechnical investigation are obtained. The designs for the mechanical, electrical and instrumentation & controls portions of the contract are being finalized. The purpose of these throttling facilities is to improve wet weather operations at the treatment plants and to maximize the use of existing storage in the interceptors.

Phase III

Final design of Phase III has not yet been initiated. Under this phase, two inflatable dams will be designed – one for Regulator B-6 in the Newtown Creek-Brooklyn drainage area which will store up to 2.0 MG, and the other for Regulator R-20 in the Red Hook drainage area that will have the capacity to store up to 2.0 MG.

Table 3

Inner Harbor CSO Project

OPEN WATERS

	Phase I	*Phase II*	*Phase III*
Plan Elements:	Regulator Improvements	Throttling Facilities	In-Line Storage
Location:	72 regulator sites in Manhattan and Brooklyn	North River WPCP	Upstream of regulators B-6 and R-20 in Brooklyn
Actions:	Conversion to fixed orifices	Installation of sluice gates in interceptor sewer	Installation of two inflatable dams in the combined sewer systems
Construction Cost:	$14,000,000	$3,000,000	$3,000,000
Status:	Final Design 90% Complete	Final Design 20% Complete	Final Design – Not Initiated
Other Issues:	-	-	-

D.) Outer Harbor

The Outer Harbor CSO Facility Planning area consists of the drainage areas of the Port Richmond, Oakwood Beach, Owls Head and Coney Island (separately sewered area) Water Pollution Control Plants (WPCPs) and their associated sewers and pumping stations. The receiving waters of the study area include the New York limits of the Raritan Bay, Arthur Kill, Kill Van Kull, Upper New York Bay waters to the boundary of the Inner Harbor CSO Project, the Narrows, Gravesend Bay, Lower New York Bay, Richmond Creek and Lemon Creek. The facility plan concluded that CSOs have minimal impact on the dissolved oxygen and coliform concentrations in the open water areas of the Outer Harbor. Therefore, consistent with the EPA's Nine Minimum Controls, the recommended elements of the facility plan for the open waters consist of:

- Regulator Improvements
- Throttling Facilities
- In-Line CSO Storage

- **Open Waters**

Preliminary Design

A preliminary design report was completed. This report includes the following recommended elements:

- Regulator Improvements
- Throttling Facility
- In-Line Storage

As-built and record drawings, for the regulators selected for improvement, were collected and will be used for developing final design drawings.

Final Design

An engineering contract for final design has been developed. This contract will have to be reviewed and approved by NYCDEP, the NYC Law Department, the Mayor's Office, and the Office of Management & Budget before it is registered. The final design contract consists of three phases:

- Phase I – Regulator Improvements
- Phase II – Throttling Facility
- Phase III – In-line CSO Storage

Phase I

Phase I will provide improvements to 32 regulators in the Outer Harbor. In additions, 14 regulators are currently being retrofitted with outfall alarms that will automatically report a

discharge from the combined sewer system. Therefore, a total of 46 regulators are being improved.

In the Port Richmond drainage area, 4 regulators will have outfall alarm capabilities (2 are in operation, 2 additional will be installed) and 28 regulators will be converted to fixed orifices.

In the Owls Head drainage area, 7 outfall alarms are operational and 3 more will be installed. In addition, 4 regulators will be improved and converted to fixed orifices.

Phase II

A throttling facility to store up to 5 MG in the Port Richmond WPCP east interceptor sewer has been recommended and preliminary design has been completed.

Phase III

Preliminary design of two inflatable dam locations for the Outer Harbor has been completed – One at Port Richmond (PR-6W, 1.4 MG) and the other at Owls Head (OH-6C, 2.2 MG).

Table 4

Outer Harbor CSO Project

	Phase I	*Phase II*	*Phase III*
Plan Elements:	Regulator Improvements	Throttling Facility	In-Line Storage
Location:	32 regulator sites throughout Brooklyn and Staten Island	Port Richmond WPCP	Owls Head: OH-6C P. Richmond: PR-6W
Actions:	Conversion to manually operated sluice gates, replacement of stop plank guides, termination of water supply	Installation of sluice gate in Port Richmond east interceptor sewer	Installation of two inflatable dams in the combined sewer system
Project Cost:	$4,800,000	$1,300,000	$3,100,000
Status*:*	Preliminary Design – 100% Complete	Preliminary Design – 100% Complete	Preliminary Design – 100% Complete
Other Issues:	-	-	-

E.) Jamaica Bay

The Jamaica Bay CSO Abatement Facilities Plan submitted in November 1993 recommended retention of 34 million gallons of CSO from Fresh Creek (27 million gallons) and Hendrix Creek (7 million gallons) combined. The retention facility was to be located beneath the Bruekelen Houses Park, a 12-acre site north of the head end of Fresh Creek, and adjacent to the major CSO sewer in Williams Avenue.

Two issues that necessitated examining alternate options impacted the feasibility of constructing this facility at the proposed location. These issues were: 1) the need to provide five interim ball fields off-site, but within the immediate neighborhood, to replace the five ball fields that would be eliminated during the construction, and 2) the subsequent sale of the only large available land in the immediate neighborhood that could accommodate five interim ball fields.

Recently, a third issue necessitating alternatives to storage beneath Bruekelen Park materialized: parkland alienation resulting from the Croton Water Treatment Plant lawsuit.

Over the past several years, the advent of soft ground tunneling has resulted in this type of construction to now be seen as practical for the project area. The alternate option of a storage/conveyance tunnel in lieu of retention tank involves a construction of a 23 foot diameter tunnel about 80 feet beneath Jamaica Bay using advanced full faced Earth Pressure Balanced Tunnel Boring Machine (EPBTBM) and precast concrete segmented gasketed lining techniques. This facility relocates the CSO from the existing Fresh Creek outfall by the Williams Avenue regulator to a NYCDEP owned site south of the sludge dewatering facility at the 26th Ward WPCP, and from Hendrix Creek outfall at the Hendrix Street Canal near the 26th Ward WPCP to the south of sludge dewatering facility at the 26th Ward WPCP. The proposed tunnel will store and convey about 27 million gallons (per Value Engineering revision) of CSO from Fresh Creek (22 million gallons) and Hendrix Creek (5 million gallons), combined, before overflowing into the Hendrix Creek just south of the 26th Ward WPCP. Preliminary estimates resulted in a tunnel length of approximately 16,000-ft. Preliminary examination has indicated that less land acquisition would be required for construction for this alternate and also, water quality computer models have resulted in improved water quality in Fresh Creek in reference to dissolved oxygen (DO) and coliform standards.

Other derivative studies from Jamaica Bay CSO Facility Planning Project are the Jamaica Bay Eutrophication Study and Jamaica Bay Chlorine Residual Study.

Meetings

- Progress meetings were held on October 9, November 13 and December 11, 2001 between O'Brien & Gere and the Department to discuss the progress of the planning and evaluation of alternatives for the CSO tunnel.

Preliminary Examinations

Up to date mapping and survey for tunnel site and vicinity had been obtained and reviewed. Last owner and easement information for the Fresh Creek shaft site has been obtained. Information on other CSO tunnel and CSO screening equipment had been compiled and presented to the Department. Re-runs of water quality model for 26th Ward tributaries are being performed for the proposed plan with and without abatement of CSO to the Hendrix Creek Canal. Initiation of geotechnical fieldwork is underway. Warren George, Inc. is evaluating permit needs from the National Park Service.

An assessment for taking borings along a proposed route to Rockaway has been made. An assessment on the need to take samples for review of HAZMAT issues for the tunnel alignment adjacent to the existing landfills has been made. Under the current plan, HydroQual is making component analysis on the coliform projections for Hendrix Creek Canal.

An investigation of shaft site and screening alternatives needs for Fresh Creek drop shaft site has been made. An evaluation of drop shaft geometry has also been made. Work on the design issues affecting the site needs at Fresh Creek with respect to drop shaft location, bypassing of excessive flow, screening and not screening, etc. was undertaken. Alternate Fresh Creek drop shaft site layouts were made.

Table 5

Jamaica Bay CSO Project

Plan Elements:	CSO Storage Tank	Dredging
Location:	Fresh Creek, Brooklyn	Head Ends of Fresh, Hendrix and Spring Creeks
Actions:	Facility Plan and conceptual/preliminary design to be revised for storage/conveyance tunnel	No additional actions regarding dredging have been taken on this project at this time
Project Cost:	$295 million	$3 million (estimate from 1993 Facility Plan)
Status:	Evaluating alternatives for tunnel shaft locations, sizing and boring locations	
Other Issues:	ULURP, SEQR to be revised	

F.) East River

The facility planning and design services for this project are being performed under East River CSO Project Contracts II, III and IV.

- **Bronx River**

Project Description

The Bronx River CSO Storage Conduit Project will include construction of a storage conduit to affect 4 MG of off-line CSO storage capacity to provide CSO abatement at Outfall HP-23 on the Bronx River. The storage conduit, which will be approximately 500' L x 60' W x 40' H, will be located along the east shore of the Bronx River in an area immediately south of the intersection of East 177th Street, DeVoe Avenue and the Sheridan Expressway. This project will also include relocating Outfall HP-23, approximately 600 feet downstream of the outfall's existing location, to the downstream end of the storage conduit. Existing Outfall HP-23 will be abandoned. Other principal facilities to be constructed as part of this project include a pumping station with a rated capacity of 2,800 gpm with an accompanying 16-inch diameter force main for pump-back purposes, air treatment facilities, and mechanical screening facilities.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on October 4, 2001, November 1, 2001, December 6, 2001 and December 7, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, URS, Lawler, Matusky and Skelly Engineers (LMS), Helen Neuhaus and Associates, and Dvirka and Bartilucci Engineers to discuss and review the overall progress of the East River CSO Project.
- Meeting on November 1, 2001 at the NYSDEC offices in Albany, NY between representatives of the NYCDEP and NYSDEC to discuss and review the status of the City's CSO abatement projects.
- Meeting on November 29, 2001 at the NYCDEP offices between representatives of the NYCDEP, URS and LMS to discuss information required by the NYCDEP to make a determination that the Flushing Bay CSO Project odor investigation data are acceptable for the basis of design for the Bronx River CSO Project air treatment facilities; thereby avoiding the need for an odor investigation for the Bronx River Project.

Field Investigations

Principal field investigations conducted during this report period are as follows:

- Responded to items/issues concerning consideration of the use of the Flushing Bay CSO Project odor investigation data for design of the air treatment facilities for the Bronx River CSO Project. At the November 29, 2001 meeting, it was decided that if URS and LMS can demonstrate that the drainage areas for the Flushing Bay and Bronx River

Projects are similar in characteristics, resulting in similar combined sewage characteristics, then the Flushing Bay odor investigation data will be acceptable for the basis of design for the Bronx River Project air treatment facilities. URS and LMS initiated preparation of this information to demonstrate that the combined sewage generated in the Bronx River Project drainage area is similar in characteristics to that of the combined sewage generated in the Flushing Bay Project drainage area.

- Continued preparation of the subsurface geotechnical investigation report for the CSO storage conduit site. Five additional geotechnical borings were drilled by Craig Test Boring Company in late November 2001 at the site of the storage conduit as a result of having to re-configure the storage conduit to avoid Metropolitan Transportation Authority (MTA) facilities.
- The NYCDEP continued to review the two separate subsurface environmental investigation reports prepared by LMS; one for the conduit site and the other for the northern portion of the Bronx River Greenway Project.

Environmental Review

Due to the slow progress being made in completing the sections of the EAS for the southern portion of the Greenway Project, the NYCDEP has been considering approaching the NYSDOT about taking on the responsibility for completing the EAS. In this regard, at the request of the NYCDEP, LMS prepared a final listing of sections required for completing the EAS, and submitted the listing and associated cost to the NYCDEP in mid-November 2001 for review. In addition, at the request of the NYCDEP, URS prepared a final scope for completing a Phase IA Archaeological Survey for the southern portion of the Greenway Project, and submitted the scope and associated cost to the NYCDEP in mid-December 2001 for review.

The NYCDEP continued to review the Phase 1A Archaeological Survey Report for the CSO storage conduit site. URS continued to prepare the Phase 1B Archaeological Survey Report for the CSO storage conduit site, based on the fieldwork performed in August 2001.

ULURP

URS continued with preparation of the draft ULURP Application for the Bronx River CSO Storage Conduit/Greenway Project. URS is coordinating with the NYCDCP on the mapping requirements for the land transfers.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- The final version of the Memorandum of Understanding (MOU) between the NYCDEP, NYSDOT, MTA and NYC Department of Parks and Recreation (NYCDPR) for the Bronx River CSO Storage Conduit/Greenway Project was signed by the NYCDEP in September 2001 and forwarded to the NYCDPR for signature.

- Continued to prepare a report providing the findings and results of the investigation to determine the feasibility of using tunneling technology to install the conveyance conduit underneath the ramp to the Sheridan Expressway.
- Completed preliminary design of the CSO storage conduit and initiated final design. The storage conduit will include facilities for screening CSO flow prior to storage in the conduit or overflow to the Bronx River. The New Austrian Tunneling Method (NATM) will be used for installation of the diversion conduit underneath the ramp to the Sheridan Expressway. Design of the project continued to be coordinated with the construction of the MTA Coliseum Bus Depot Project, and the NYSDOT designs of the highway improvements and Greenway Project.
- Continued to prepare detailed hydraulic calculations for the CSO storage conduit.
- Prepared and submitted a package of material to the NYCDEP, describing the Bronx River CSO Project, for the NYCDEP to submit to the NYC Office of Management and Budget (NYCOMB) prior to the 30% Value Engineering Review, scheduled for March 2002.
- Submitted a revised project schedule to the NYCDEP for the Bronx River CSO Storage Conduit.

Table 6

Bronx River CSO Project

Plan Elements:	Bronx River CSO Storage Conduit
Location:	Property adjacent to intersection of East 177th Street, DeVoe Ave., and Sheridan Expressway
Actions:	Design and construction of a 4 MG storage conduit, with new outfall, including screenings facility, air treatment system, and pumping station to pump stored CSO flow back into the interceptor system; abandonment of existing Outfall HP-23.
Cost:	$38,500,000
Status:	Final design underway.
Other Issues:	EAS needs to be completed to obtain Negative Declaration for project; ULURP Application needs to be completed and certified; mapping for land transfers needs to be completed prior to ULURP Application certification.

- **Hutchinson River**

Project Summary

The Hutchinson River CSO Storage Conduit Project will include the construction of a storage conduit to affect 7 MG of off-line storage in order to provide CSO abatement at Outfalls HP-14 and HP-15 on the Hutchinson River. The design of the storage conduit will incorporate the San Francisco Collector concept so as to achieve a level of primary treatment (settling) within the conduit. The storage conduit will consist of a northern reach and a southern reach. The northern reach will consist of a conduit varying in width from 16'-0" to 24'-0" by a height of 11'-0" extending southward within roadway rights-of-way approximately 3,500 linear feet from near where Boston Road crosses over the Hutchinson River to the Conner Street Pumping Station, resulting in 4.7 MG of storage capacity. The southern reach will consist of a conduit (10'-0" W x 11'-0" H) extending southward within roadway rights-of-way approximately 3,000 linear feet from the intersection of Conner Street and Peartree Avenue to the CO-OP City North Pumping Station, resulting in 2.3 MG of storage capacity. Other principal facilities to be constructed as part of this project include: four large chambers for connection of the storage conduit to the existing sewer system; modifications to the existing Conner Street and CO-OP City North Pumping Stations; air treatment facilities; rehabilitation of existing Outfalls HP-14 and HP-15; and construction of a new outfall at the southern terminus of the southern reach.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on October 4, 2001, November 1, 2001, December 6, 2001 and December 7, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, URS, Lawler, Matusky and Skelly Engineers (LMS), Helen Neuhaus and Associates, and Dvirka and Bartilucci Engineers to discuss and review the overall progress of the East River CSO Project.
- Meeting on October 17, 2001 at the New York Bus Service Company (NYBSC) offices in the Bronx between representatives of the NYCDEP, URS and NYBSC to discuss several construction issues regarding the Hutchinson River CSO Project.
- Meeting on October 25, 2001 at the Hutchinson River CSO storage conduit site between representatives of the NYCDEP, CO-OP City, the Bronx Community Board No. 10 and URS to review the project and the impacts of the construction on the community.
- Meeting on November 1, 2001 at the NYSDEC offices in Albany, NY between representatives of the NYCDEP and NYSDEC to discuss and review the status of the City's CSO abatement projects.
- Public meeting on November 7, 2001 at the CO-OP City complex between representatives of the NYCDEP, residents of CO-OP City, Riverbay Corporation, political organizations and URS to present the Hutchinson River CSO Project, and discuss the impacts of the construction of the southern segment of the storage conduit on the residents of CO-OP City.

- Meeting on November 19, 2001 at the NYCDEP offices between representatives of the NYCDEP and URS to discuss the impacts of the construction of the Hutchinson River CSO Storage Conduit on the New York Bus Service Company remediation program for the fuel oil spill, and the measures and facilities being included in the project to mitigate the impacts.
- Meeting on November 27 at the offices of NYS Senator Thompson in the Bronx between Senator Thompson and representatives of the NYCDEP and URS to discuss the background of the Hutchinson River CSO Project, and the impacts of the construction of the project on the local community.
- Meeting on November 29, 2001 at the NYCDEP offices between representatives of the NYCDEP and URS to discuss possibilities for reducing the proposed two-staged air treatment system for the northern reach of the storage conduit to be located at the Conner Street Pumping Station to a one-staged system.

Field Investigations

Principal field investigations conducted during this report period are as follows:

- Submitted a letter to the NYCDEP in early November 2001, which provides the results of the investigation into the source of the contamination detected in the sentry wells located near the Hexagon Pharmaceutical Spill Site.
- Submitted a second copy of the soils classification report the NYSDEC for review in early November 2001, at the request of the NYCDEP. This report includes the analyses to determine quantities of regulated, non-regulated and hazardous soils for bidding purposes.
- Submitted the subsurface geotechnical investigation report to the NYCDEP in late December 2001. This report summarizes the results and conclusions of the subsurface geotechnical investigations along the northern and southern reaches of the CSO storage conduit.
- The NYCDEP continued to review the subsurface environmental investigation report, summarizing the results and conclusions of the subsurface environmental borings along the northern and southern reaches of the CSO storage conduit.

Environmental Review

The NYSDEC and Army Corps of Engineers Joint Application Permit for impacting the tidal wetlands at the outfall locations was submitted to the NYCDEP in late November 2001. Following review and approval, the NYCDEP will submit this permit to the NYSDEC for approval.

The NYCDEP initiated an in-house review of the NYCDEP Dewatering Permit, which indicates that the groundwater from the construction excavation will be discharged to the sewer system for conveyance to the Hunts Point WPCP and not to the Hutchinson River.

URS continued preparation of the modification to the Hunts Point WPCP SPDES Permit for the new CSO outfall to be constructed at the downstream end of the southern reach of the CSO storage conduit near the CO-OP City North Pumping Station, and for modifications to existing Outfalls HP-14 and -15 located at the southern and northern ends of the northern reach of the CSO storage conduit, respectively.

The NYCDEP continued to review the draft EAS submitted by the URS and LMS.

ULURP

No ULURP approval is required for the Hutchinson River CSO Project.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- Submitted a revised project schedule to the NYCDEP for the Hutchinson River CSO Storage Conduit.
- Performed an evaluation to compare the costs of two methods for treating and disposing of groundwater pumped from the excavation for the storage conduit. The two methods included in the comparison were: discharging the groundwater into the sewers and treating the groundwater at the Hunts Point WPCP; and, treating the groundwater on-site and discharging the water into the Hutchinson River. This evaluation was submitted to the NYCDEP in late October 2001.
- Submitted a letter to the NYCDEP in late November 2001 presenting the reasons and justification for the Hutchinson River CSO Storage Conduit in lieu of constructing a CSO storage tank.
- Contacted the Riverbay Corporation to determine the exact locations of their steam pipes and to assess any impacts that construction of the storage conduit may have on the pipes.
- Initiated an investigation to determine if the proposed two-staged air treatment system for the northern reach of the storage conduit to be located at the Conner Street Pumping Station could be reduced to a one-staged system.

- Continued with the final design for the northern and southern reaches of the CSO storage conduit.
- The NYCDEP continued to review the hydraulic calculations for the northern and southern reaches of the CSO storage conduit.
- The NYCDEP continued to review the report entitled, “Hutchinson River CSO Storage Conduit, Evaluation of the Need for Air Treatment”.
- The NYCDEP continued to review the report describing the system for operation and control of the pump-back of stored CSO from the CSO storage conduit.

Table 7

Hutchinson River CSO Project

Plan Elements:	Hutchinson River CSO Storage Conduit
Location:	Public Rights-of-Way from Boston Road to CO-OP City North Pumping Station
Actions*:*	Design and construction of CSO storage conduit consisting of two segments; a 4.7 MG northern segment and 2.3 MG southern segment. Includes overflow chambers and conduits, dry weather flow conduits, outfalls and drainage conduits with connections to Conner Street Pumping Station for northern segment, and CO-OP City North Pumping Station for southern segment.
Cost:	$110,000,000
Status:	Final design 95% complete.
Other Issues:	Negative Declaration needed for project.

- **Alley Creek**

Project Summary

The Alley Creek Drainage Area Improvements/CSO Abatement Facilities Project will be constructed in two phases with the first phase consisting of two stages, the Alley Creek Drainage Area Improvements (Phase I, Stage 1), the Alley Creek CSO Abatement Facilities (Phase I, Stage 2), and the Oakland Ravine Stormwater Treatment System (Phase II). The principal elements included in the project are additional stormwater and combined sewers, a new outfall sewer, a new combined sewer outfall to substantially eliminate street flooding and sewer surcharging, and construction of a new 5 MG CSO Storage Facility to abate CSO discharges into Alley Creek (Phase I, Stage 1); activation of the 5 MG CSO Storage Facility including upgrading the Old Douglaston Pumping Station (Phase I, Stage 2); and construction of a stormwater treatment system in the form of settling basins and natural emergent wetlands (Phase II). The construction contracts for Phase I, Stage 1 and Phase I, Stage 2 have been designated as ER-AC1 and ER-AC2, respectively.

The principal facilities to be provided under Phase I, Stage 1 include approximately 1,400 linear feet of an 11'-0" W x 8'-0" H combined sewer; approximately 1,200 linear feet of an 11'-0" W x 9'-0" H combined sewer; approximately 3,000 linear feet of stormwater sewers ranging from 15- through 48-inches in diameter; a double barrel outfall sewer consisting of approximately 1,475 linear feet of two 16'-0" W x 7'-6" H barrels followed downstream by approximately 650 linear feet of two parallel 20'-0" W x 7'-9" H barrels (average height); a CSO Storage Facility to be constructed alongside of the 20'-0" W x 7'-9" H (average height) double barrel outfall sewer, with approximate dimensions of 120 feet wide by 600 feet long and a maximum depth of 15 feet; and an outfall structure and stilling basin on Alley Creek. The outfall sewer will discharge into Alley Creek through the new outfall structure to be constructed under Phase I, Stage 1.

The 5 MG CSO Storage Facility will also be constructed under Phase I, Stage 1, and activated under Phase I, Stage 2. The new outfall sewer will function as part of the CSO Storage Facility after the construction of a fixed weir, located at the downstream end of the outfall sewer, to induce CSO storage during rainstorms. The CSO Storage Facility will be emptied by use of 24-inch and 36-inch diameter gravity drains to the Old Douglaston Pumping Station, which is located (in Alley Park) along the south side of Northern Boulevard, west of Alley Creek. The CSO Storage Facility will be cleaned, after each storm event by using ten HydroSelf Flushing Gates (five at each end of the CSO Storage Facility).

The design and construction of ecological restoration areas and wetlands to mitigate construction impacts within Alley Park have been separated from Phase I, Stage 1, Contract ER-AC1 and included in a separate new contract. This new contract will begin after the completion of Contract ER-AC1. A contract number has not been issued for this new construction contract at this time.

The stormwater treatment system to be provided under Phase II will consist of a wetlands treatment system to be constructed in Oakland Ravine to provide primary and secondary

treatment, with the treated effluent being discharged into Oakland Lake, and ultimately into Alley Creek through the existing 10'-0" W x 7'-6" H outfall sewer. A contract number has not been issued for this construction contract at this time.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on October 4, 2001, November 1, 2001, December 6, 2001 and December 7, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, URS, Lawler, Matusky and Skelly Engineers (LMS), Helen Neuhaus and Associates, and Dvirka and Bartilucci Engineers to discuss and review the overall progress of the East River CSO Project.
- Project review meeting on October 2, 2001 at the Queens Borough Hall between representatives from the Queens Borough President's Office (QBPO), NYCDEP, NYCDPR, NYCDOT, NYSDEC, Queensborough Community College, URS, Helen Neuhaus and Associates, Alley Pond Environmental Center (APEC), and other community and political organizations.
- Meeting on October 4, 2001 at the NYCDEP offices between representatives of the NYCDEP, URS and LMS to review the latest version of the conceptual design of the ecological restoration and wetlands construction proposed for Alley Park.
- Meeting in mid-October at LMS's offices in Pearl River, NY between representatives of the NYCDEP and LMS to review and discuss the conceptual design of the ecological restoration and wetlands construction proposed for Alley Park.
- Meeting on October 15, 2001 at the NYCDEP offices between representatives of the NYCDEP and URS to review details regarding the re-design of the new 11'-0" W x 8'-0" H combined sewer on Springfield Boulevard.
- Meeting on October 19, 2001 at the NYCDOT offices in Manhattan between representatives of the NYCDOT, NYCDEP and URS to review NYCDOT comments on the Maintenance and Protection of Traffic (MPT) Plan drawings for Contract ER-AC1, as well as to discuss restoration and maintenance issues with regard to the Cross Island Parkway.
- Meeting on November 1, 2001 at the NYSDEC offices in Albany, NY between representatives of the NYCDEP and NYSDEC to discuss and review the status of the City's CSO abatement projects.
- Meeting on December 3, 2001 at the NYCDCP offices in Manhattan between representatives of the NYCDCP, NYCDEP and URS to discuss the ULURP Application and prepare for the public hearing held on December 5, 2001.
- Public hearing on December 5, 2001 at the NYCDCP offices in Manhattan at which the siting action for the Phase I, Stages 1 and 2 Project was presented and approved for submittal to the City Council for approval.

- Meeting on December 14, 2001 at the Queens Office of the NYCDPR between representatives of the NYCDEP, NYCDPR, NYCDOT and URS to review maintenance jurisdictional limits between the NYCDPR and NYCDOT along the Alley Creek Project limits within Alley Park, and in particular along the Cross Island Parkway.
- Meeting on December 19, 2001 at the NYCDEP offices between representatives of the NYCDEP and URS to review the revised design of the sewer along Springfield Boulevard.

Field Investigations

No field investigations were conducted during this report period.

Environmental Review

The NYCDEP submitted a letter to the NYSDEC in mid-October 2001 responding to comments on the Joint Application Permit that were previously provided by the NYSDEC.

The Long Island Well Permit Application was submitted to the NYSDEC in late December 2001 with a request for conditional approval, based on the construction contractor furnishing the additional specific information required by the NYSDEC.

URS submitted a Notice of Complete Application for the EAS in late December 2001 to the New York Daily News on behalf of the NYCDEP and NYSDEC. This Notice, which is being published in the newspaper in early January 2002, indicates that any comments on the project must be submitted to the NYSDEC by January 18, 2002.

URS continued with preparation of the permit modification to the Tallman Island WPCP SPDES Permit for the new CSO outfall discharging into Alley Creek.

ULURP

The ULURP Application for the project was certified by the NYCDCP on July 23, 2001. Queens Community Board No. 11 approved the ULURP Application on September 4, 2001, and the QBPO approved the ULURP Application on September 20, 2001. At the public hearing on December 5, 2001 at the NYCDCP offices in Manhattan, the siting action for Phase I, Stage 1 and Phase I, Stage II of the Alley Creek Project was presented. Approval was granted at this hearing to forward the ULURP Application to the City Council for approval.

URS indicated that decisions will need to be made by the NYCDEP as to whether the Oakland Ravine Project requires ULURP approval, and whether an EAS is required for the project.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- Submitted a memorandum to the NYCDEP on September 28, 2001, summarizing the August 24, 2001 site visit to the Old Douglaston Pumping Station to determine the scope of work required to upgrade the pumping station under Phase I, Stage 2.
- Submitted revised project schedules for the four construction contracts that comprise the Alley Creek CSO Abatement Project to the NYCDEP to reflect the required longer periods of time for the NYCDEP to review the contract specifications and for the bidding and registration of the contracts as compared to previous schedules. These revised schedules also reflect less overlap between the completion of the drainage elements included in the Phase I, Stage 1 Contract and the initiation of the Phase II Contract to avoid the possibility of a storm washing out newly completed work within Oakland Ravine.
- The NYCDEP submitted a letter to the NYSDEC in early November 2001, responding to an August 1, 2001 letter from the NYSDEC requesting an excavation and soils management plan for Phase I, Stage 1 of the Alley Creek Project.
- The NYCDEP submitted a letter to the NYSDEC in mid-November 2001 presenting the Total Maximum Daily Load (TMDL) Program for floatables removal for Alley Creek.
- Completed the re-design of the new 11'-0" W x 8'-0" H combined sewer along Springfield Boulevard, which includes removing the existing 66-inch diameter combined sewer, and installing the new 11'-0" W x 8'-0" H combined sewer in the area vacated by the existing sewer. Copies of the revised contract drawings for the re-designed sewer along Springfield Boulevard were submitted to the NYCDEP in mid-November 2001 for review and the revised design was discussed at a meeting held on December 19, 2001 at the NYCDEP offices.
- The NYCDEP Legal Department approved the Contract ER-AC1 specifications in mid-November 2001.
- Procured the services of PCA Engineering in late November 2001 for the cathodic protection design of the new 630-foot section of 30- and 36-inch diameter water main to be installed along 56th Avenue.
- The NYCDEP issued a letter to the NYCDOT in late November 2001 requesting a meeting to resolve the issues regarding the maintenance jurisdiction issues along the project route in Alley Park at the outfall sewer crossing of the Cross Island Parkway.
- Revised the Maintenance and Protection of Traffic (MPT) Plan drawings to be consistent with the re-design of the new combined sewer along Springfield Boulevard, and submitted the revised MPT Plan drawings to the NYCDEP and NYCDOT in mid-December 2001 for review.

- Submitted the contract drawings of the revised design of the sewer along Springfield Boulevard, to the affected utility companies and the NYC Fire Department in mid-December 2001 for their review and comment, to assure that the relocated sewer does not adversely impact upon existing utilities.
- Initiated an investigation of alternatives for a water supply to provide a secondary flush for the Alley Creek CSO storage facility in December 2001 at the request of the NYCDEP.
- The NYCDEP essentially completed their review of the Preliminary Design Report for the Oakland Ravine Stormwater Treatment System.
- Revised the specifications for Contract ER-AC1 to allow reuse of excavated soil from the project for fill material in the Alley Park ecological restoration and wetlands construction work at the discretion of the NYCDEP, so long as the excavated soil meets specific gradation and material content requirements.
- Completed the revisions to the contract drawings and specifications for Contract ER-AC1 to delete the ecological restoration and wetlands construction work in Alley Park.
- Continued with the conceptual design of the ecological restoration and wetlands construction in Alley Park under a separate contract.
- Submitted the contract drawings for Contract ER-AC1 to the NYCDEP for final technical review.

Table 8

Alley Creek CSO Project

Plan Elements:	Alley Creek Drainage Area Improvements (Phase I, Stage 1)	Alley Creek CSO Abatement Facilities (Phase I, Stage 2)	Alley Park Ecological Restoration and Wetlands Construction	Oakland Ravine Stormwater Treatment System (Phase II)
Location:	46th Avenue, 53rd Avenue, 56th Avenue, Bell Boulevard, Luke Place, 214th Street, 216th Street, 217th Street, Springfield Boulevard, Cross Island Parkway, Northern Boulevard and Alley Park in Bayside, Queens	Northern Boulevard and Alley Park in Bayside, Queens	Alley Park in Bayside, Queens	Oakland Ravine and Oakland Lake in Bayside, Queens; Queensborough Community College Campus in Bayside, Queens
Actions:	Design and construction of additional stormwater and combined sewers, catch basins, outfall sewer and outfall structure to affect improved drainage in areas upstream of Outfall TI-7 in Bayside, Queens. Design and construction of 5 MG CSO storage facility for CSO abatement within Alley Creek.	Design and construction of modifications to the Old Douglaston Pumping Station including air treatment facilities to treat air exhausted from the CSO storage facility; design and construction of hydraulic control structures and facilities to activate the 5 MG CSO storage facility constructed under Phase I, Stage 1.	Design and construction of ecological restoration areas and wetlands to mitigate construction impacts; approximately 7 acres to be constructed.	Design and construction of a wetlands stormwater treatment system in Oakland Ravine to treat stormwater prior to discharge into Oakland Lake and ultimately into Alley Creek; design and construction of upgrades to the stormwater sewer system on the Queensborough Community College Campus; and design and construction of rehabilitation measures within Oakland Ravine and Oakland Lake.
Cost:	$124,900,000	$17,700,000	$7,000,000	$24,500,000
Status:	Final design completed; preparing to advertise for bids in January or February 2002.	Preliminary design to be initiated in January 2002.	Conceptual design underway.	Preliminary design report completed in August 2001, which is under review, by NYCDEP.
Other Issues:	Notice of Complete Application for EAS issued by NYSDEC; ULURP Application needs only Mayor's Office Approval.	Available capacity in Old Douglaston Pumping Station and sewer system for pump-back purposes needs to be verified.	Requires NYC Department of Parks and Recreation approval.	Determination needs to be made if EAS and ULURP Actions are required; requires NYC Department of Parks sand Recreation approval; input from special interest groups needed.

- **Westchester Creek**

Project Summary

The Westchester Creek CSO Storage Tank Project will include construction of a 12 MG underground CSO storage tank to be located in the southwest section of the Bronx Psychiatric Center (BPC) Campus adjacent to Waters Place, near the intersection of Eastchester Road. The proposed underground storage tank will have approximate dimensions of 410' L x 155' W x 27' H and will provide CSO abatement at Outfall HP-25 on Westchester Creek. Other principal facilities to be constructed as part of the project include: a two story administration/support building; an air treatment building; a single-barrel supply conduit (13'-0" W x 8'-0" H) extending from the Outfall HP-25 sewer in Eastchester Road to the underground storage tank; a double-barrel overflow conduit (each barrel 12'-0" W x 5'-0" H) extending from the underground storage tank to the Outfall HP-25 sewer in Eastchester Road; and a pumping station with a rated capacity of approximately 10,500 gpm and an accompanying 24-inch diameter force main extending from the underground storage tank to the sewer system in Eastchester Road for pump-back purposes. In addition to the facilities required for CSO abatement at Outfall HP-25, the NYCDEP has agreed to provide, as part of this project, amenities for use by the two Little Leagues that utilize the baseball fields adjacent to the site of the underground storage tank. These amenities consist of restroom facilities, a clubhouse building, a paved parking area on top of the underground storage tank, and fencing to enclose the Little League areas so as to keep the ball fields and parking areas separated from the BPC Campus facilities and the NYCDEP facilities.

Meetings

Principal meetings held during this report period are as follows:

- Project Progress meetings on October 4, 2001, November 1, 2001, December 6, 2001 and December 7, 2001 at the NYC Department of Environmental Protection (NYCDEP) offices between representatives of the NYCDEP, URS, Lawler, Matusky and Skelly Engineers (LMS), Helen Neuhaus and Associates, and Dvirka and Bartilucci Engineers to discuss and review the overall progress of the East River CSO Project.
- Meeting on October 11, 2001 at the NYCDCP offices in Manhattan between representatives of the NYCDCP, NYCDEP and URS to discuss the ULURP Application, and specifically the ownership of the Little League restrooms and clubhouse facility, and the maintenance responsibilities for these proposed Little League facilities.
- Meeting on October 17, 2001 at City Hall in Manhattan with the NYC Art Commission to present the proposed Little League restrooms and clubhouse facility to the NYC Art Commission.
- Meeting on November 1, 2001 at the NYSDEC offices in Albany, NY between representatives of the NYCDEP and NYSDEC to discuss and review the status of the City's CSO abatement projects.

- Meeting on November 28, 2001 at City Hall in Manhattan with the NYC Art Commission to present the mass model of the proposed Little League restrooms and clubhouse facility.
- Meeting on December 5, 2001 at the Bronx Community Board No. 11 offices in the Bronx between representatives of Bronx Community Board No. 11, NYCDEP and URS to discuss the background and construction impacts on the community of the Westchester Creek CSO Abatement Project, including the Little League facilities.
- Meeting on December 12, 2001 at the Dormitory Authority of the State of New York (DASNY) offices in Manhattan between representatives of the NYCDEP, DASNY, BPC (via telephone), NYC Department of Citywide Administrative Services (DECAS) (via telephone), NYS Office of Mental Health (NYSOMH) (via telephone) and URS to discuss completion of the ULURP Application and EAS for the Westchester Creek CSO Project, the impact of the easement along the BPC Campus' western service road on the property being acquired by the NYCDEP, drilling of the geotechnical borings on the site and the construction of the new BPC pumping station at the project site.

Field Investigations

Principal field investigations conducted during this report period are as follows:

- Jersey Boring and Drilling Co., Inc. drilled six geotechnical borings in early October that are required for the design of the Little League restrooms and clubhouse facility; URS initiated preparation of the subsurface investigation report which summarizes the findings from these borings and provides foundation recommendations for the restrooms and clubhouse facility.
- Submitted a drawing to the NYCDEP in late October 2001 for review, which shows approximate locations and depths for the proposed geotechnical and environmental borings required for design of the CSO storage tank. The NYCDEP informed URS in early November 2001 to obtain approval from the BPC to drill the geotechnical borings, and to proceed to solicit cost proposals from qualified drilling firms to drill the geotechnical borings at the CSO storage tank site and along the routes of the influent/effluent conduits to be constructed in Waters Place and Eastchester Road.
- Munoz Engineering continued to prepare the metes and bounds survey for the property being acquired at the BPC Campus for the proposed CSO storage tank, and is currently awaiting a final Title Search Report from the Title Search Company. Fieldwork was completed in late September 2001.

Environmental Review

URS and LMS submitted a revised draft EAS for the CSO storage tank project to the NYCDEP in mid-December 2001, which incorporates comments provided by the NYCDEP.

Site Acquisition/ULURP

The NYCDCP indicated in early November 2001 that a re-zoning action would not be required for the siting of the proposed CSO storage tank and the Little League restrooms and clubhouse facility at the BPC Campus. However, a special permit (74-734 Permit) will be required for the siting of the underground pumping station that will be needed to pump out the stored combined sewage from the tank after storms and to pump dry weather sanitary wastewater from the BPC Campus.

Based on discussions at the December 12, 2001 meeting at the DASNY offices in Manhattan, the new easement along the BPC's western service road on the property being acquired by the NYCDEP, which is for the use of the development corporation that is presently developing land purchased from the State of New York at the north end of the BPC Campus, will have some impact on the Westchester Creek CSO Project; however, revisions can be made to the project to minimize or negate completely any adverse effects of the easement.

URS initiated revisions to the draft ULURP Application based on discussions in meetings held on October 11, 2001 at the NYCDCP offices in Manhattan and December 12, 2001 at the DASNY offices in Manhattan.

Based on conversations with the NYC Department of Citywide Administrative Services (DECAS), there has been some communication between DECAS and DASNY with regard to purchase of the site at the BPC Campus for the proposed CSO storage tank.

Facility Planning/Preliminary and Final Designs

Principal work performed during this report period includes:

- Prepared a mass model of the proposed Little League restroom and clubhouse facility, and presented the model to the NYC Art Commission on November 28, 2001. The NYC Art Commission granted Full Preliminary Approval for the restrooms and clubhouse facility based on this presentation.
- Initiated final design of the site preparation contract for the Westchester Creek CSO Project, which includes the Little League restrooms and some preliminary site work for the CSO storage tank.
- Initiated preliminary design for the CSO storage tank.
- Initiated preparation of a request for proposals to solicit drilling services for the geotechnical borings at the site of the proposed CSO storage tank and along the routes of the influent/effluent conduits along Waters Place and Eastchester Road.
- Initiated hydrologic and hydraulic analyses needed for design of the CSO storage tank.
- Curtailed work on the preparation of the TMDL Program for settleables removal for Westchester Creek, as directed by the NYCDEP, pending the completion of the TMDL Program for floatables removal for Alley Creek.

- Submitted revised project schedule to the NYCDEP for the Westchester Creek CSO Project.

Table 9

Westchester Creek CSO Project

Plan Elements:	Westchester Creek CSO Storage Tank
Location:	Bronx Psychiatric Center Campus in the Bronx
Actions:	Design and construction of a 12 MG underground CSO Storage Tank to provide CSO abatement at Outfall HP-25 on Westchester Creek, including influent and effluent conduits along Waters Place and Eastchester Road; design and construction of a two-story support/ operations building and an air treatment building; and design and construction of amenities for the Bronxchester and Van Nest Little Leagues.
Cost:	$203,400,000
Status:	Final design underway for the site preparation contract (restroom for Little Leagues and miscellaneous site preparation work); preliminary design underway for storage tank.
Other Issues:	Site needs to be acquired by NYCDEP from the State of New York; Negative Declaration needed for project; ULURP Application needs to be completed and certified; NYC Art Commission granted Full Preliminary Approval for restrooms and clubhouse facility for Little Leagues; licensing agreement between the NYCDEP and the Little League organizations needed prior to the completion of construction of the restrooms.

G.) Coney Island Creek

- **Avenue V Pumping Station**

The recommended plan for the Coney Island Creek CSO Facility Planning Project is to increase the wet weather pumping capacity of the Avenue V Pumping Station. The Avenue V Pumping Station tributary area encompasses 2,900 acres, of which 2,056 acres are separately sewered and 844 acres have combined sewers. The Avenue V Pumping Station capacity will be increased to capture 85 percent, by volume, of the CSO discharges to Coney Island Creek. The capacity of the pumping station will be increased from approximately 30 mgd to 80 mgd. New pumps, motors, variable frequency drives (VFDs) and controls will be installed and two new force mains will be constructed.

Meetings

Principal meetings held during this report period were as follows:

- Meetings with NYCDEP and Hazen and Sawyer on October 24, November 1 and November 28.

Final Design

Final design work of the pumping station upgrade and associated new force mains has continued.

In a letter to Con Edison, NYCDEP requested that the utility reevaluate its power supply alternatives so as to eliminate the need for a network protector structure (NPS). Previously, Con Edison informed NYCDEP that a NPS would be required. 480V service would be provided via transformers and network protectors housed within a nominal 40-foot by 25-foot single story structure located along West 11th Street within the Avenue V Pumping Station property. Due to zoning concerns and a lengthy approval process to obtain a variance, however, NYCDEP prefers an alternate means of providing power to the upgraded facility. NYCDEP awaits a reply from Con Edison.

Value Engineering

The Value Engineering (VE) Implementation Meeting was held on August 3. Outstanding VE issues were discussed and several identified for further follow-up. Supplemental information was submitted to NYCDEP on September 5 and transmitted to NYCOMB on September 17.

Dry Weather Overflows

Eight outfalls that discharge to Coney Island Creek were identified as contributing dry weather overflows to the Creek. The following table identifies the outfall number, location, determination date of the discharge, flow, and current status.

Outfall I.D.	Location	Determination Date	Flow (GPD)	Status
CI-214	CI Creek (N) 600' w/o Shore Pkwy	12/20/90	1,860	Abated as of 12/31/96
CI-215	CI Creek (N) 10' w/o Shore Pkwy	12/20/90	1,411	Abated as of 12/31/98
CI-602	CI Creek & W.33rd Street	11/20/90	259	Abated as of 12/31/98
CI-639	CI Creek (SS) & W.12th Street	02/08/95	2,938	Abated as of 12/31/96
CI-641	Head of CI Creek & Shore Pkwy	12/20/90	372,960	Abated as of 12/29/94
CI-653	CI Creek (SS) 1500' sw/o Shore Pkwy	02/08/95	1,958	Abated as of 12/31/98
CI-664	CI Creek (S) & W.15th Street	12/12/90	3,326	Abated as of 12/31/98
CI-601	CI Creek & W.28th Street	11/16/90	158	Capital Project to abate discharge is under design

Dredging

At this time, DEP has no immediate plans for dredging Coney Island Creek due to the high costs associated with land disposal and the inability to dispose materials at a ocean mud site.

Table 10

CONEY ISLAND CREEK CSO Project

	Contracts PS-79G, H, P, E	*Contract PS-79G*	*Contract PS-79F*
Plan Elements:	Pumping Station Upgrade	Regulator Modifications	New Force Mains
Location:	Avenue V PS (Avenue V and West 11th Street)	Reg. AV-1 at Avenue V PS site; Reg. OH-1 (Shore Pkwy. vic. Verrazano Bridge)	42-inch to SE-133 (Shore Pkwy. Vic. Verrazano Bridge); 48-inch to vic. Reg. 9A
Actions:	Comprehensive upgrade to automate and increase station capacity to 80 mgd; Lower Wet Well to reduce sewer surcharges; Generator system to improve station reliability; Architectural restoration of Main Building to 1915 appearance	Enlarge orifice from Regulator AV-1 to branch interceptor to maximize flow to Wet Well before onset of CSO event; Automate Reg. AV-1 throttling gate; Lower weir at Reg. OH-1 diversion chamber to maintain existing HGL in upstream sewers	New force mains to convey DWF and WWF
Cost:	$31,000,000	Incl. at left	$62,000,000
Status:	Final Design – 50% Complete	Final Design – 0% Complete	Final Design – 50% Complete
Other Issues:	Con Edison Network Protector Structure at property line on West 11th Street; relocation of station personnel during construction.	——	Routing of force main along parkland; Selective replacement of water and sewer utilities along route.

H.) Newtown Creek

- **Phase I Aeration Facilities**

This element of the plan will provide for aeration of English Kills, south of the Grand Street bridge, to raise DO concentrations to a minimum of 1.0 mg/l at all times. A compressor station will be located at 1106 Grand Street, adjacent to English Kills and will deliver air to English Kills via air headers and diffusers on the Creek bottom along its centerline. Data will be collected during the first year of operation to guide refinements in operating procedures and verify performance.

Preliminary Design

The preliminary design has been completed. Drawings, facility descriptions and construction cost estimates have been prepared for three alternatives. The alternatives have been presented to the Department.

A preliminary evaluation of an alternative utilizing perforated plastic pipe as a header/diffuser, has also been completed and is under review by the Department.

CEQR and Permitting

An EAS for the Phase I Aeration has been completed and sent to NYSDEC together with applications for permits for their review. OEPA issued a negative declaration on December 14, 2000 for the Phase I Aeration project. NYSDEC issued a permit on May 31, 2001. The U.S. Army Corp. of Engineers has approved the Departments request for a Nationwide Permit No. 5 concurrence for Scientific Measurement Devices. Contact has also been made with the US Coast Guard for their review of the project.

ULURP

The NYC Department of City Planning certified the ULURP application on October 22, 2001. It was reviewed by the Community Board and is currently under review by the Borough President's Office.

- **Phase II Aeration Facilities**

This element of the facility plan includes aeration of the Lower English Kills, the East Branch and Dutch Kills. This work will follow the performance evaluation of the Phase I facilities.

- **Maximize Flow Through Morgan Ave. Interceptor**

In-line storage in the combined systems within the Newtown Creek wet weather tributary area has been determined to be inconsistent with the City drainage plan. An alternative to installation of in-line storage dams has been proposed that would increase the capacity of

Regulator B1, increase flow through the Morgan Avenue Interceptor, and provide a relief sewer from the St. Nicholas Weir to Regulator B1. Facility planning for routing of the sewer is underway. The facility plan will include throttling of the Kent Avenue Interceptor in order to allow more flow from the Morgan Avenue Interceptor to reach the WPCP.

Receiving water modeling to assess the benefits of this proposal has established required volume for supplementary off-line storage.

Preliminary Design

Preliminary design will be completed after the conclusions have been reviewed and incorporated into a new facility plan.

- **Off-Line Storage Tank**

This plan element comprises the construction of an off-line storage facility to control CSO discharge into English Kills. Flow would be diverted from the combined sewers flowing west along Johnson Avenue. As described in the facilities plan, the proposed tank was to be on property located on Varick Avenue, adjacent to English Kills. The tank was to be co-located on the site with a Department of Sanitation facility.

Siting

An alternative siting proposal was developed, to construct the tank within the head end of English Kills. This proposal was sent to NYSDEC for comment on its feasibility. The Department met with NYSDEC on May 23, 2001 to review this proposal and to solicit comment from NYSDEC. The proposal was rejected because the Department had not established sufficient cause why a tank could not be constructed on existing land.

A re-evaluation of land based siting alternatives was initiated following this meeting. Six (6) alternative sites were reviewed and presented to the Department. Information presented to the Department included possible site plans, construction feasibility and risks, impacts on current occupants and neighborhood and construction and O&M costs. The alternative sites were screened and the advantages and disadvantages were evaluated. The preferred site is located at the intersection of Johnson and Morgan Avenues. This site is preferred due to its close proximity to the interceptor, outfall and force main.

Facility Planning

A draft Facility Plan is being prepared for construction of the storage facility on the preferred site. Modeling analysis was performed to verify CSO abatement projections. Preliminary plan and profile drawings and preliminary equipment sizing is being performed.

CEQR and Permitting

A draft EAS for the proposed storage facility was prepared and is under review by OEPA. A Phase I Site Assessment, including the site history and site inspection is being prepared.

- **Sediment Dredging**

A dredging feasibility study was added to the facility plan at the request of NYSDEC. The feasibility of dredging CSO sediments from the branches of Newtown Creek will be investigated. The investigation includes a hydrographic survey to determine locations of sediment mounds and sediment sampling to clarify sediment quality.

Feasibility Study

The draft Dredging Feasibility Study Report was completed in October 2000. The Department anticipates collaboration with the Army Corps of Engineers to include the dredging of Newtown Creek with the COE Habitat Restoration Projects.

Table 11

Newtown Creek CSO Project

Plan Elements:	Maximize flow through Morgan Ave. Interceptor	Phase I Aeration Facilities	Off-line Storage Tank
Location:	Regulator B1 and WPCP throttling chamber	Head end of English Kills, south of Grand Street	Sewers tributary to CSO outfall discharging to English Kills
Actions:	Raise overflow weir in Regulator B1; increase sluice gate openings to interceptor; provide relief sewer from St. Nicholas weir to Regulator B1; provide throttling gate on Kent Avenue Interceptor.	Provide aeration of English Kills to raise DO concentrations to a minimum of 1.0 mg/l. The facility includes a landside compressor station and an air header and diffuser assembly on the Creek bottom.	Design of an off-line storage facility to control CSO discharge into English Kills. The facility would include the tank, a pumping station, and a new force main to drain the tank for treatment at the Newtown Creek WPCP.
Cost:	Planning not complete	$8,000,000	$73,000,000
Status:	Facility plan elements for modifications to regulator and routing of the relief sewer are being prepared.	Preliminary design & CEQR completed. Permit issued by NYSDEC. Nationwide Permit No. 5 concurrence issued by USACOE. ULURP certified and under review by Borough President's office.	Siting in English Kills was rejected by NYSDEC. Identified preferred site at intersection of Johnson and Morgan Avenues after re-evaluation of siting alternatives. Preliminary plan and profile drawings and preliminary equipment sizing is being performed for construction of tank at preferred location.
Other Issues:	Requires coordination with WPCP planning and design requirements	Phase II for the lower English Kills, the East Branch and Dutch Kills will follow.	Acquisition of property required.

I.) Jamaica Tributaries

The Jamaica Tributaries project area includes the Jamaica WPCP sewershed area and the tributaries, which receive the wet weather discharges from the drainage area. These tributaries include Bergen, Thurston, Shellbank, and Hawtree Basin, which are located in the northeast portion of Jamaica Bay.

Flow Monitoring and Modeling

Continued the calibration of the HydroWorks model of the Jamaica WPCP drainage area. Confirming model input data including regulator drainage area and dry weather flow.

Field Investigations

Completed detailed field investigations of the storm sewer system tributary to Bergen and Thurston Basin. The results obtained from the field investigations are currently being analyzed.

High Rate Physical Chemical Treatment Demonstration (HRPCT)

See write up in Section IV – Demonstration Projects

Destratification Demonstration

See write up in Section IV- Demonstration Projects

Abatement of Meadowmere/Warnerville Dry Weather Discharges

Prepared a response to comments memorandum for the DEP comments received on the Draft Preliminary Design Report.

Work on obtaining information to support the Draft EAS, has been completed. Data collection for the EAS included: wetlands, archaeology, and Phase I Environmental Site Assessment. The geotechnical subcontractor completed the 26 borings and will be submitting a Draft Geotechnical Report to the DEP. These borings will be utilized for detailed final design. Submitted a draft ULURP on November 20th and a Draft EAS on December 18th to the DEP for review and comment.

Through recent investigations of trenchless construction techniques, it has been recommended that horizontal directional drilling (HDD) be utilized to install a 10-inch gravity sewer from Meadowmere to the Warnerville Pumping Station. Construction of the 10-inch gravity sewer will eliminate the need for the proposed Meadowmere Pumping Station. The property associated to the Warnerville Pumping Station is owned by City of New York, and a meeting will be held with the EDC on January 18th. This meeting will be held to discuss the location and size of the Warnerville Pumping and EDC's proposed projects in the vicinity of the Warnerville community.

East Interceptor Cleaning

The Jamaica WPCP East Interceptor sewer has been cleaned of accumulated sediments.

Regulator Improvements

As part of the Department's citywide effort to provide outfall alarm capabilities at key regulators, 7 outfall alarms will be installed in the Jamaica WPCP drainage area as per Omnibus IV Consent Order requirements.

Storm Sewer Buildout

A drainage plan for the Jamaica WPCP drainage area must be developed. Currently, the Department is in the process of selecting a consultant to award an engineering contract to develop the drainage plan.

In-stream Aeration in Thurston/Bergen Basins

In-stream aeration is being demonstrated and evaluated in the Newtown Creek water body. Results from this demonstration test are awaited.

Dredge Thurston/Bergen Basins

At this time, DEP has no immediate plans for dredging due to the high costs associated with land disposal of dredged sediments and the inability to dispose materials at an ocean mud dumpsite.

Dry Weather Discharges to Thurston/Bergen Basins

The abatement process to correct the dry weather illicit sewer connections into Bergen Basin, from Outfall JAM-006, has been substantially completed. The official certification confirming abatement was submitted.

- The related projects were as follows:

° Baisley Boulevard = #SEQ-002381 Construction completed
(Installed new sanitary sewer fronting properties along Baisley Boulevard)

° Liberty Avenue = SE-744/SEQ-200260 Construction completed
Tuckerton Street
(Corrected illegal connections at locations along Liberty Avenue)

The completion of the above Capital Sewer Projects resulted in the abatement of 65,580 GDP of flow entering Bergen Basin. The total amount of flow abated to date is 340,000 GPD with the remaining 1,500 GPD the result of the four homeowners who could not afford to make the necessary repairs due to financial hardships. These locations were forwarded to NYC's

Department of Housing Preservation & Development to make the necessary repairs, and then place lines on the properties. Housing has provided no information up to this reporting period. DEP has requested an update on the status of the four hardship properties.

The dry weather discharge to Thurston Basin has been eliminated through the construction of a sanitary sewer along Springfield Blvd from Linden Blvd to 131st Avenue.

Sanitary Sewers in Rambersville

Construction of sanitary sewers in the Rambersville area has been completed. The sanitary sewers were constructed to eliminate the failing septic tanks in this small community.

Bulkhead CSO Outfall to Shellbank Basin

The construction work to bulkhead the inactive CSO outfall to Shellbank Basin has been completed. Therefore, there are no CSO discharges to Shellbank Basin, only stormwater.

Chemical Oxidation

A bench scale study of the feasibility of adding calcium nitrate to significantly reduce sediment oxygen demand (SOD) was performed. Sediment cores were taken from the Jamaica Tributary basins and analyzed in a laboratory setting to determine the effectiveness of various dosages of calcium nitrate on lowering the SOD. The results indicated that chemical oxidation of SOD in a marine environment is not effective.

Meetings

Principal meetings held during this report period were as follows:

- Project Progress Meetings with NYCDEP on October 18, November 20, and December 18, 2001.

Table 12

Jamaica Tributaries CSO Project

Plan Elements:	Chemical Oxidation, HRPCT and Destratification Demonstrations	Abatement of Meadowmere and Warnerville	Preliminary Design – Thurston/Bergen Drainage Plan
Location:	Jamaica WPCP, Jamaica WPCP, and Shellbank Basin	Meadowmere and Warnerville – Queens, New York	Jamaica WPCP Drainage Area
Actions:	Conduct demonstration testing of new technologies	Construction of 1 Pumping Station, Sewer Collection System, and Force Main	
Construction Cost:	Pilot HRPCT - $100,000 Destratification - $100,000	$12.2 million	To be determined
Status:	Responding to comments on the Draft Preliminary HRPCT Design Report	Draft Preliminary Design, Draft ULURP, and Draft EAS Complete	Consultant Selection Process Underway
Other Issues:		Site Issues must be resolved with NYCEDC	

J.) Citywide Floatables

Work continued on tasks being performed for the development of the Comprehensive City-Wide Floatables Control Abatement Plan. During the period October through December 2001, progress continued on tasks related to comprehensive plan development, public outreach, best management practices (BMPs) analysis, wet weather capacity analysis, CSO modeling, floatables loadings, and catch basin and CSO abatement demonstration projects.

- ***Comprehensive Plan Development***

Work continued on the development of comprehensive plans for the North River WPCP, Red Hook WPCP, and Hunts Point WPCP drainage areas. Development of a draft pilot comprehensive plan for floatables and settleable solids control for the Bowery Bay WPCP drainage area was submitted to NYCDEP on October 4, 2001. The technical memorandum "Comprehensive CSO Floatables and Settleable Solids Abatement Plan for the Bowery Bay WPCP Drainage Area" is being reviewed by NYCDEP and comments received will be incorporated into the final report.

For the Red Hook WPCP Comprehensive Plan, work continued on evaluating conveyance, storage and treatment control options. Three sites were identified for construction of storage/treatment facilities to alleviate CSOs from Gowanus Canal. Gowanus Canal has been identified as the most sensitive water quality issue in the Red Hook WPCP drainage area. A feasibility analysis was conducted on these sites in terms of property ownership, utility lines that may interfere with new sewer construction, and potential resistance from the public because of the presence of a number of historic sites in the vicinity of Gowanus Canal. Analysis also continued on the impact of Red Hook CSOs on NYC beaches. In addition, a hydrodynamic analysis was conducted to assess the benefits from designing disinfection facilities at two major Red Hook outfalls that discharge into the East River.

On December 6, 2001 a joint planning meeting was held as part of the Use and Standards Attainment (USA) Project Bronx River Plan progress meeting. Discussions were held at the meeting to plan coordinating efforts between the USA Bronx River Plan and the Hunts Point WPCP Comprehensive Plan, along with future USA/Comprehensive Plan coordination.

- ***CSO Modeling and Floatables Loadings***

During this period, work was completed on the detailed hydraulic analysis of the Bowery Bay WPCP drainage area to ensure feasibility of the proposed plan. Work was nearly completed to cross-calibrate the RAINMAN and InfoWorks models for the Red Hook WPCP drainage area. RAINMAN will then be used to determine CSO volumetric percent capture under existing and proposed control conditions on a long-term basis.

Also during this period, analyses were completed to estimate how structural controls being evaluated for the Bowery Bay WPCP drainage area would reduce CSO floatables.

- ***Public Outreach***

The Public Outreach subtask neared completion as RoperASW (formerly Audits and Surveys Worldwide) completed work on a public-relations strategy that would most effectively increase public awareness of the problem and ultimately reduce littering. RoperASW presented a summary of their results to the NYCDEP on November 7, 2001. A draft of the final summary report was completed in December, and is being internally reviewed before being submitted to NYCDEP in early 2002. The summary report also includes an analysis of an effective media campaign aimed at key target groups. In addition, a meeting is being planned for the first quarter 2002 to present the results of the study to the Citizens Advisory Committee (CAC) Education Subcommittee.

- ***Settleable Toxics***

The sampling program to obtain representative samples of combined sewage for analysis of toxics and metals under the Containment Assessment and Reduction Program (CARP) was terminated by NYSDEC in November. Under this program, eleven WPCPs, Hunts Point, Red Hook, Jamaica, North River, 26th Ward, Owls Head, Coney Island, Port Richmond, Newtown Creek, at both the influent channel and the Manhattan Pump Station, Bowery Bay, at both the High Level and Low Level channel, and the Manhattan Grit Chamber of the Wards Island WPCP were successfully sampled.

- ***Catch Basin Cleaning Demonstration Project***

The objective of the catch basin demonstration project is to estimate grit and litter accumulation rates in catch basins, evaluate the impact of grit and litter accumulation on hood performance and determine optimum-cleaning intervals based on floatables retention efficiency. This is being done to address concerns that the hooding of catch basins may increase the need and frequency for catch basin cleaning. Grit and litter accumulation rates were developed from inspections of approximately 4000 catch basins distributed across different land use classes. Catch basin flooding evaluations (frequency and cause) were also made through information gathered from NYCDEP's maintenance yards.

A full-scale pilot catch basin system was used to assess the impact of grit and litter on hood efficiency. This system was constructed at the Tallman Island WPCP. Testing was initiated in January 2001, and was completed in late May 2001. A technical memorandum presenting the results and analyses of the entire Catch Bain Cleaning Demonstration Project is being prepared.

- ***In-Stream Controls***

The NYCDEP is investigating the use of inter-pier skimmer vessels for use in floatables removal where other CSO control measures are not feasible. These vessels will be completely self-contained, self-powered, and capable of operating on New York City inter-pier waterways. It was decided that two Requests for proposal (RFP) for the purchase of inter-pier marine skimming vessels would be prepared. The first RFP will focus on the conceptual/preliminary design of the vessel, including proof of concept via scale model testing. The second RFP will

cover the construction of full-scale skimmer vessels based on the selected design from the first RFP. Preparation of the first RFP was completed and submitted to DEP for review. Comments were received and are being incorporated into the final RFP document for the design phase.

- ***Wet Weather Capacity Analysis and Generic Wet Weather Operations Plan***

As part of the effort to maximize wet weather flows to the City's WPCPs, an evaluation of wet weather capacity of each plant servicing a combined collection system was initiated during the third quarter of 2000. This is being done to define the maximum flows that can be handled by the plant's headworks, primary and secondary treatment processes, and the bypass channels, as well as to develop a generic wet weather operating plan to establish an operating strategy for maximizing wet weather capacity.

A brief presentation and meeting with NYCDEP was held on October 4, 2001 to review work completed for the Bowery Bay WPCP and to review project scope and goals. A follow-up meeting was held on October 16 with NYCDEP subconsultants to discuss the stabilization project and BNR upgrade projects. On November 8, 2001, plant visits to the Red Hook and Owls Head WPCPs were conducted. Plant operations and wet weather performance data were reviewed with the plant superintendents and process engineers. Plant operating data was also analyzed for the Rockaway and Jamaica WPCPs.

On November 26, 2001, a presentation was made to NYCDEP summarizing wet weather flows, WPCP performance and wet weather operating issues from the data analyses and WPCP visits conducted to date. The purpose of the meeting was to present and discuss preliminary conclusions regarding wet weather operating issues with members of the Bureau of Wastewater Treatment. Based on these discussions the scope of work for this task will be revised from determining wet weather capacities of each WPCP to developing capacities and plant specific wet weather operating plans for two plants, one of which will be Red Hook. A specification for developing wet weather operating plans and determining the wet weather capacity will also be developed. This will be used by facility planning and stabilization engineers to develop wet weather plans and determine wet weather capacities for the remaining WPCPs.

Analysis of WPCP data has essentially been completed for 10 of the 14 WPCPs. Data for the remaining plants will be analyzed by facility planning or stabilization engineers to prepare plans for their plants. The Wet Weather Operating Plan for the Red Hook WPCP was initiated, and completion of a draft plan is anticipated in the first quarter 2002. This plan is being based on NYSDEC plan requirements and examples of approved plans. Following completion of the Red Hook plan, a data analysis and Wet Weather Operating Plan protocol will be prepared.

- ***Cryders Lane Outfall Diversion Channel Project***

Design and Construction

Spearin Preston and Burrows was awarded the contract for the Cryders Lane Outfall Diversion Channel Project, as the lowest bidder with a lump sum bid of $2,184,000. A pre-award meeting took place on September 20. Due to the seasonal dredging restrictions, construction activities will not start until approximately October 2002.

Environmental Review

A draft of the Army Corp of Engineers (USACE) permit was received in November 2001. The permit was reviewed by HydroQual and forwarded to NYCDEP for review and approval. The approved permit was returned to USACE for final execution. Questions raised by the Department of City-Wide Administrative Services regarding the Department of Business Services authorization were responded to.

III. Project Progress for Use and Standards Attainment Project

The Use and Standards Attainment (USA) Project is being conducted by the New York City Department of Environmental Protection (DEP) for waterbodies throughout New York Harbor to address compliance with water quality standards and designated uses. The goals of the USA Project are to:

- Define, through a public process, more specific and comprehensive long-term beneficial use goals for each waterbody, including habitat, recreational, wetlands and riparian uses, in addition to water quality goals, thus maximizing the overall environmental benefit;
- Develop technical, economic, public and regulatory support for prioritizing and expediting implementation of projects and actions needed to attain the defined goals; and
- Provide the technical, scientific and economic bases to support the regulatory process needed to define water quality standards for the highest reasonably attainable use and to allow water quality standards to be attained upon implementation of recommended projects.

Waterbody/Watershed assessments are being conducted for 23 waterbodies throughout New York Harbor. The waterbodies include major open water areas of New York Harbor and selected urban tributaries. The USA Project started on August 5, 1999 and is scheduled for completion on August 5, 2003. The following is a brief description of USA Project activities for the period of October 1 to December 30, 2001.

- **Waterbody/Watershed Assessments**

The USA Project is conducting focused waterbody/watershed assessments on each of the 23 waterbodies that are organized into four groups. The Group 1 waterbodies are "pilot waterbody/watershed assessments" being conducted for Paerdegat Basin and the Bronx River. Group 2 waterbodies include Jamaica Bay, Mill and East Mill Basins, Fresh Creek, and Shellbank, Bergen and Thurston Basins. The Group 3 waterbodies are the East River, Alley Creek, the Hutchinson River, Westchester Creek, Flushing Creek and Bay, Newtown Creek, and Gowanus Canal. The Group 4 waterbodies are the Harlem River, Hudson River, Upper New York Bay, Lower New York Bay, Kill van Kull, Arthur Kill, Raritan Bay, and Coney Island Creek. The waterbody/watershed assessments include various activities including existing data and information gathering/compilation, watershed/waterbody field investigations and data collection, public outreach in the form of stakeholder teams, land use and shoreline characterizations, data management, watershed and receiving water mathematical modeling, ecosystem (habitat) evaluations, waterbody use evaluations, problem identification and prioritization, engineering analyses, and waterbody/watershed planning.

Assessment Schedule

Assessments are anticipated to be 18 to 24 months in duration. A preliminary waterbody/watershed plan for Paerdegat Basin was developed during this reporting period so work on this waterbody/watershed assessment is virtually completed. Work is continuing for the Bronx River as the remaining Group 1 waterbody. Work is ongoing on the Group 2 and Group 3 waterbodies. Assessment work is scheduled to start in winter 2002 on the Group 4 waterbodies.

Field Investigations

Field Sampling and Analysis Programs (FSAPs) are being developed and executed to conduct field investigations for waterbody/watershed assessments. Specific FSAPs address biological sampling, shoreline characterizations, and other investigations necessary for collecting comprehensive information on each waterbody/watershed, where no information has previously been collected or is out of date. A Field and Laboratory Standard Operation Procedures (SOP) document for the USA Project is being used in support of FSAP execution. This document is being updated when new procedures are required for additional investigations. The SOP and all FSAPs are developed in conformance with SOP guidelines developed by the U.S. Environmental Protection Agency (EPA) and discussed with the EPA Monitoring and Assessment Branch in Edison, NJ.

Biological FSAPs were completed for investigating the Bronx River, Paerdegat Basin, the Group 2 (Jamaica Bay) and Group 3 (East River) waterbodies, harbor-wide ichthyoplankton, and harbor-wide epibenthic recruitment and survival. Laboratory work continues on biological samples collected during the Group 2 and 3 and harbor-wide investigations.

FSAPs are being conceptualized for execution in the year 2002 with focus on harbor-wide water column and sediment toxicity as well as follow-up biological investigations to those conducted previously. These activities are also being coordinated with the DEP Harbor Survey to locate continuous remote sensors and coordinate special studies throughout the New York Harbor and its tributaries.

Data Management

Sewer system, surface water, sediment, biological, and many other categories of data have been compiled from a variety of sources to construct a relational database. The database consists of data from DEP's Harbor Survey, the Interstate Environmental Commission, the National Park Service, and virtually all of DEP's CSO and water quality facility planning projects. The relational database is also integrated with a Geographic Information System (GIS) such that spatial information is maintained for analyses. Water quality, biological, and other data forms collected by the USA Project are being added to this relational database for waterbody assessments with quality assurance/control verification. A customized graphical user interface is being developed for the database that will facilitate efficient data extractions.

Compilation of data collected during the Paerdegat Basin FSAP is complete. Date collected during the Bronx River, Jamaica Bay (Group 2), East River (Group 3), and the harbor-

wide epibenthic and ichthyoplankton FSAPs are currently being entered into the database. A data summary document has been developed summarizing all data collected to date by the USA Project. The document was developed to fulfill a request by the USA Project's Harbor-Wide Government Steering Committee for a detailed summary and review of the data thus far collected. This document will expand as data is compiled. The document was submitted to and reviewed with the DEP Harbor Survey in December 2001.

Land Use and Shoreline Characterizations

Land use and shoreline characterizations described in the previous status report are continuing. The characterizations are general in nature and build upon existing data. Field verification of the analyses is being performed as existing information is compiled and interpreted. Land use and shoreline characterizations are being conducted on all USA Project waterbodies and watersheds at this time. Particular focus has been made on Paerdegat Basin and Jamaica Bay in support of Paerdegat Basin waterbody/watershed planning and the Bronx River for its waterbody/watershed plan development.

Waterbody/Watershed Mathematical Modeling

An important component of the USA Project is assessing existing conditions in waterbodies as well as projecting the long-term benefits of the DEP's various water quality improvement projects. Mathematical modeling consists of both watershed modeling and receiving water modeling.

Watershed modeling is primarily being performed using HydroQual's RAINMAN model, which is a simplified rainfall-runoff models to calculate watershed pollutant loadings to receiving waters. Watershed models are being modified and updated for each of New York City's 13 combined sewer water pollution control plants (WPCP). The models are being calibrated to the City's WPCP flow data for the years 1996 and 2000. These models are also being compared to existing stormwater management models representing the City's WPCP service areas that were developed for CSO facility planning projects.

The USA Project is currently updating, upgrading, and utilizing receiving water models representing Paerdegat Basin, the Bronx River, Jamaica Bay and its tributaries, and the East River and its tributaries. The Paerdegat Basin model was used to calculate water quality conditions for an annual-average period selected from available rainfall statistics of over fifty years. Statistical and return-period analyses were performed to select the annual-average year - 1988. This simulation period will be used for all waterbody modeling.

Ecosystem Evaluations

Data collected during field investigations are being used to comprehensively analyze existing ecological conditions of USA Project waterbodies. Comparisons are being made between waterbodies of similar and differing water quality and habitat conditions both within and outside New York Harbor. Information developed by mathematical modeling is also being used to assess existing benthic and water quality biological conditions and to assess future

potential conditions with anticipated water quality improvements of facility plans and other pollution abatement programs. Evaluations of existing and potential dissolved oxygen conditions are being conducted for larval growth, larval survival, and juvenile growth of aquatic species for dissolved oxygen conditions. Evaluations were completed for Paerdegat Basin during this reporting period and are now focused on the Bronx River and Jamaica Bay waters.

Engineering Analyses

Engineering analyses are being conducted to identifying control alternatives that would be implemented in addition to WPCP and CSO facility plans such that water quality goals are met. CSO abatement alternatives such as outfall relocation, additional storage, floatables controls, and disinfection are being evaluated. Costs, constructability, implementation schedule, environmental impact, and other associated issues are being developed with conceptual planning of these alternatives.

Evaluations of CSO abatement alternatives were completed during this reporting period in support of waterbody/watershed planning for Paerdegat Basin. Work was initiated this period for the Bronx River.

Waterbody/Watershed Planning

Planning efforts were particularly focused on Paerdegat Basin during this reporting period. Regulatory review, data analysis/evaluation, mathematical modeling, and engineering analysis components of the USA Project provided information for developing a Paerdegat Basin Preliminary Waterbody/Watershed Plan. The plan was presented to the New York State Department of Environmental Conservation (DEC) in November 2001 with follow-up discussions in December. A presentation of the plan is scheduled for January 2002 for the U.S. Environmental Protection Agency.

- **Interagency Coordination**

Harbor-Wide Government Steering Committee

A Harbor-Wide Government Steering Committee provides guidance and coordination for conducting the USA Project. Members of the Harbor-Wide Government Steering Committee represent the U.S. Environmental Protection Agency, the National Park Service, the U.S. Army Corps of Engineers, the Interstate Environmental Commission, the New York State Department of Environmental Conservation, the New York City Departments of Environmental Protection, City Planning, and Parks & Recreation, and the New York City Citizens Advisory Committee on Water Quality. Harbor-Wide Government Steering Committee meetings are scheduled to occur on a quarterly basis. A meeting was held on October 12, 2001. The next meeting is scheduled for January 17, 2002, which will feature a presentation of the Paerdegat Basin Preliminary Waterbody/Watershed Plan.

U.S. Army Corps of Engineers Restoration Projects

The USA Project is conducting a variety of field and engineering investigations that are similar in scope to proposed plans being developed by the U.S. Army Corps of Engineers (USACE) for New York Harbor and its tributaries. These plans are primarily focused on habitat/ecosystem restoration. USA Project efforts are continually being evaluated for identifying cost-sharing opportunities that will fulfill DEP's commitments as a local sponsor to the USACE projects. Specifically, the USA Project is coordinating its activities with the USACE's restoration work on Jamaica Bay, Gowanus Canal, Flushing Creek and Bay, and the Bronx River. The USA Project is also gathering information on these projects to identify the water quality benefits and how they can be integrated into DEP's waterbody/watershed plans.

IV. Demonstration Projects

A.) Destratification Demonstration at Shellbank Basin

The purpose of this demonstration is to specifically address the poor water quality that seasonally exists in Shellbank Basin (located in the Jamaica Bay) due to natural temperature stratification of the waterbody.

System Design

In an effort to mitigate the natural temperature stratification and resulting marine kills and odor releases, a full-scale destratification demonstration system has been installed in the Shellbank Basin. The destratification facility consists of a shore-side compressor station and diffused air lines, which run along the bottom of the basin. The destratification system delivers compressed air to the basin bottom, which is intended to vertically mix the water column of Shellbank Basin to create an isothermal condition.

System Operations

The second year of the demonstration was successfully completed in September. Receiving water monitoring indicated that the facility was able to maintain a vertically uniform temperature in Shellbank Basin. No odor complaints associated with past chronic stratification were received from the residents near Shellbank Basin. The facility was shutdown for the fall/winter seasons and will be reactivated in the early summer of 2002.

B.) In-Line Storage

The Hunts Point drainage basin comprises the eastern two thirds of the borough of the Bronx. It is bounded by Westchester County to the north and the East River estuary to the east and the south. The drainage area comprises of approximately 1,800 acres of urban terrain. The Hunts Point drainage area sewer system may be appropriate for in-line storage because of a large sewer storage capacity, shallow hydraulic grade, gravity flow, and low potential for flooding.

The Hunts Point In-line Storage project incorporates the use of three inflatable dams, installed in sewers within the Hunts Point drainage basin, to make use of the in-line storage capacity of the sewers. The purpose of this project is to demonstrate the technology and ascertain the operational and maintenance issues and concerns at actual full-scale New York City installations. The systems from two inflatable dam manufacturers, Rodney Hunt and Bridgestone, will be tested. O'Brien and Gere will be operating both systems for a period of one year.

The use of inflatable dam sewer installations is planned for use at several Track 1 CSO abatement projects and could be involved in Track 2 CSO abatement projects (floatables and settleables control).

Meetings

No meeting was held during the 4th quarter of 2001.

Preliminary Examinations

Functional testing of the installed inflatable dam equipment for Metcalf Avenue site will be scheduled for January. Start-up for the Lafayette and Metcalf Avenue sites will be scheduled upon the testing of the equipment satisfactory to both the Engineer and the Department. Another operations meeting between the Department and O'Brien & Gere will be scheduled in the first quarter of 2002.

C. High Rate Physical Chemical Treatment

A preliminary design of a HRPCT demonstration facility at the 26th Ward WPCP is currently being developed. The demonstration facility is being downsized due to operational concerns of the impact the demo facility will have on plant performance during the planned upgrade. This concern is based on the quantity of ferric chloride that the demo facility will use and the re-circulation of the ferric within the plant's liquid and sludge streams.

It is envisioned that the demo facility will consist of two HRPCT units running side-by-side, a Krueger Actiflo unit and an IDI Densadeg unit.

D. CSO Control Technologies

The evaluation of a hinged baffle system as retrofit CSO control technologies continued in this period. During October, HydroQual and representatives of NYCDEP's Bureau of Wastewater Treatment visited the Massachusetts Water Resources Authority and Boston Water & Sewers Commission (BWSC) in Boston, MA. The purpose of the trip was to develop a more comprehensive understanding of their experience with the use of regulator baffles to control CSO floatables. In addition, a visit was made to Rizzo Associates of Natick, MA, a consultant for BWSC, to review detailed design of baffles and construction activities.

HydroQual also visited Alden Laboratories in Holden, MA to tour the facility where the hinged baffle will be tested. Henry Pratt Co. will be constructing the scaled-down version of the hinged baffle with torque limiting device to be tested. A trip to observe the testing is being scheduled for February 2002. The technical memorandum on the evaluation of CSO control technologies is being updated and reviewed. The memorandum includes discussions on the regulator screening process, control technologies evaluation, the engineering design results and the conclusions of the hydraulic analysis on the regulators and combined sewer analysis.

V. Contracts

- **New Contracts**

  No new contracts were reported this quarter.

- **Change Orders**

  - ***Citywide Floatables***

    Change Order X-6 to the City-Wide Floatables Study Contract II was submitted to NYCDEP on January 2, 2002. The scope of work for this change order included additional work involving assessment of end-of-pipe netting systems and modified designs for existing systems.

  - ***Comprehensive CSO Plan***

    A final draft Change Order X-5 to the Comprehensive City-Wide Floatables Control Abatement Plan was submitted to NYCDEP on September 6, 2001. The scope of work includes additional funding to evaluate capacity and operation and maintenance (CMOM) issues and funding for evaluating the use of skimmer vessels to remove floatables from New York Harbor if other CSO control measures are unable to.

  - ***East River***

    Change Order X-11 to East River Contract II was registered in early October 2001. The scope of work for this change order includes additional work involving: facilities planning, public participation, subsurface investigations, surveying, ULURP Applications and reviews, and environmental reviews (CEQR/SEQR activities) for the four (4) East River CSO Projects (Alley Creek, Bronx River, Hutchinson River and Westchester Creek). The ULURP and environmental review activities required for the NYSDOT-sponsored Greenway Project as part of the Bronx River CSO Storage Conduit Project are also included in this change order.

VI. Public Participation

- **Public Outreach**

Citizens Advisory Committee on Water Quality

There were two *Citizens Advisory Committee on Water Quality Meetings* held during the fourth quarter period; the meetings were held on October 10, and November 14, 2001. The agendas from the meetings are presented in Appendix B.

Waterbody/Watershed Stakeholder Team Activities

Local Waterbody/Watershed Stakeholder Teams are being formed for each waterbody being assessed by the USA Project as an integral part of the assessment process as well as an important component of the project's public outreach program. The composition of the stakeholder teams includes community leaders, local residents, and waterbody users. The teams are providing information on waterbody and watershed uses, water quality issues, and long-term intentions and desires for the waterbody.

Stakeholder teams have been formed for the Bronx River and Paerdegat Basins waterbody/watershed assessments. Activities are continuing for convening stakeholder teams for the Group 2 waterbodies. Preliminary public outreach has begun and invitation letters have been drafted for prospective team members. The Group 2 teams will be convened in early 2002.

- **Project Documentation, Reports and Publications**

Preliminary Waterbody/Watershed Characterizations

Preliminary waterbody/watershed characterization documents are being developed for all waterbodies being assessed by the USA Project. Documents are completed for Paerdegat Basin and Jamaica Bay. Information recently gathered was used to update and finalize a document for the Bronx River. Documents are being developed for all remaining USA Project waterbodies. These preliminary characterization documents are being used as a baseline for developing more comprehensive documents for each waterbody/watershed as their assessments proceed and planning is begun.

Preliminary Waterbody/Watershed Plan Reports

A preliminary waterbody/watershed plan report was drafted for Paerdegat Basin to support presentations of the plan. The draft report includes all information used to construct the plan and is being finalized while the plan is being presented to state and federal agencies and the USA Project's Steering Committee.

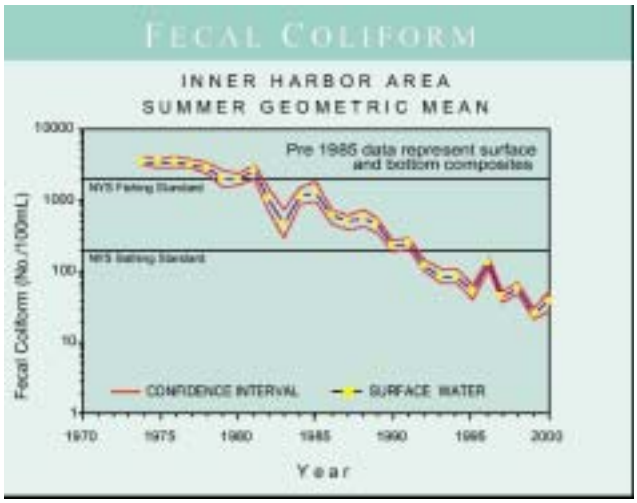
Project Web Site

A project web site describing the objectives of the USA Project and the importance of public participation is being constructed. The web site will have specific areas focused on each of the waterbody/watershed assessments. Dissemination of local waterbody stakeholder teams documents such as meeting notes is facilitated. Information on other DEP activities effecting particular waterbodies will be provided. Federal and state regulations on designated uses and water quality standards will be described with links to governmental sites for additional information. An interactive mapping tool will provide spatial representations of USA Project and general DEP activities. During this reporting period the USA Project team has worked with DEP and the New York City Department of Information Technology and Telecommunications (DoITT), which administers the City's Internet operations, on constructing the project web site.

VI. Water Quality

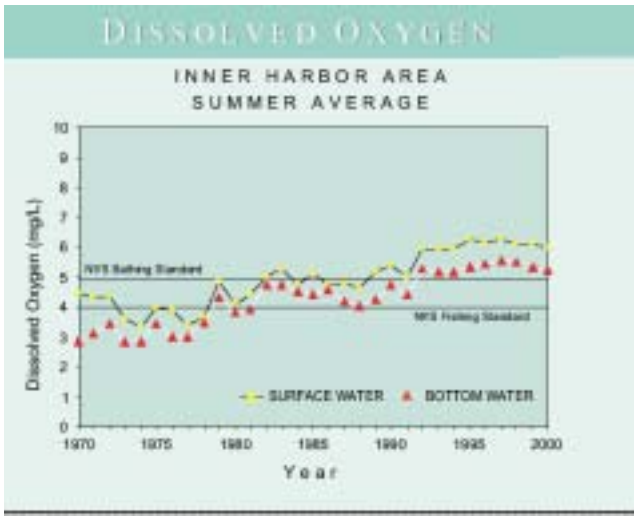
The following information was taken from the New York Harbor Water Quality Regional Summary Report for the year 2000.

- **Inner Harbor**



Sanitary water quality as estimated by fecal coliform (FC) concentrations was excellent for the Inner Harbor Area in summer 2000. All IH Area monitoring sites complied with monthly FC standards of 200 cells/ 100 mL.

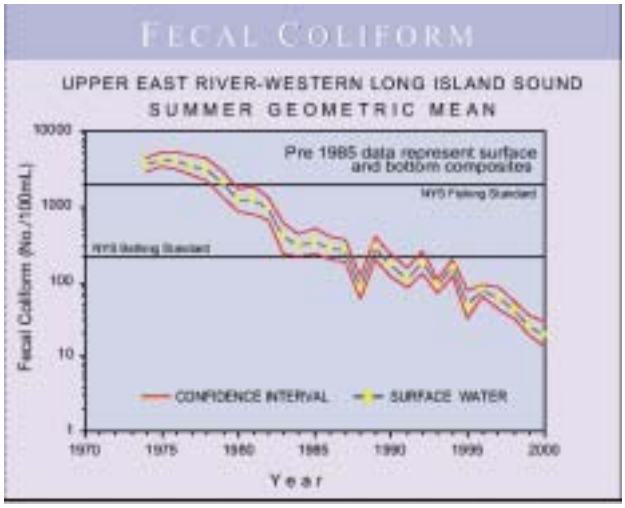
Fecal coliform concentrations for the Inner Harbor Area show a dramatic decline (over two orders of magnitude) from the early 1970s to the present time. Today's water quality has improved to the degree that surpasses conditions deemed appropriate for most recreational activities, whereas 1970s water quality did not meet fishing standards.



Dissolved Oxygen (DO) values observed in the Inner Harbor Area for the summer of 2000 were quite favorable. Average DO values were above the DEC standard of 4 mg/L deemed appropriate for fishing for both surface and bottom waters.

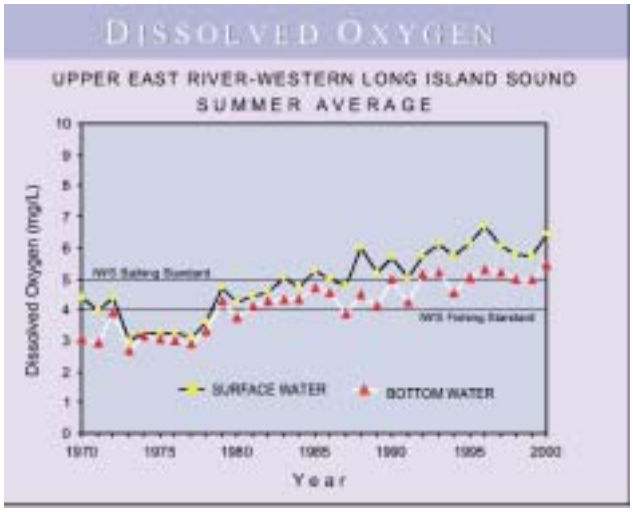
Dissolved oxygen has shown a consistent increase in the Inner Harbor Area over the past 30 years. The average DO values for bottom waters have increased from below 3mg/L in 1970 to above 5mg/L in 2000.

- **East River**



In 2000, sanitary water quality continued to be superior for this area. Fecal coliform concentrations for all monitoring sites were in compliance with their specified best use classifications for bathing and fishing.

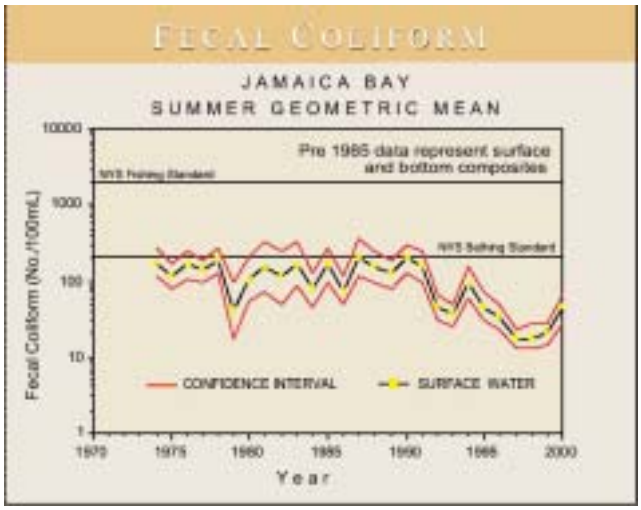
Fecal coliform concentrations continue to show a downward trend as they have for more than twenty years in the Upper East River-Western Long Island Sound (UER-WLIS) region.



Average summer DO values for the UER-WLIS vicinity met and exceeded 4 mg/L (conditions suitable for fishing). However, average bottom water values at three of the five stations designated as SB, were below the applicable 5 mg/L standard for bathing waters.

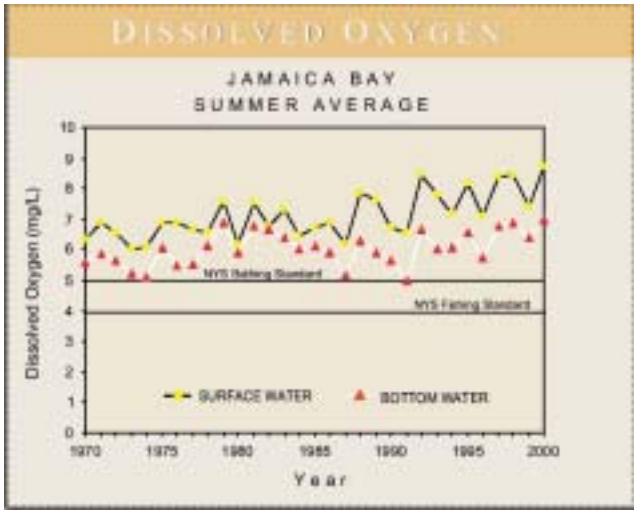
Trend analysis for the UER-WLIS area shows an increase in DO of about 1.5 mg/L for top waters and almost 2 mg/L for bottom waters since 1970.

- **Jamaica Bay**



In 2000, sanitary water quality was superior for Jamaica Bay, with summer fecal coliform concentrations well below standards for most stations.

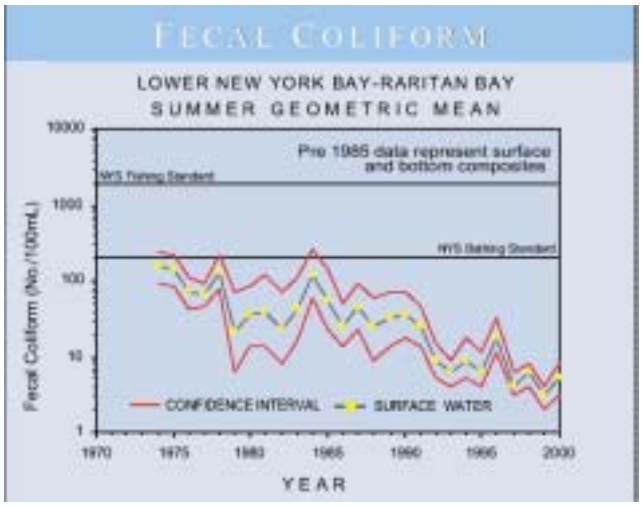
Trends for Jamaica Bay FC, from the early 1970s until 1990, show considerable variability above and below the standard. However, beginning in the 1990s, a significant improvement is apparent. From this point, and continuing through 1999, the geometric mean FC concentration decreased by an order of magnitude.



The summer averages for dissolved oxygen for surface and bottom waters surpassed the New York State standard of 5 mg/L for bathing at all Jamaica Bay sites.

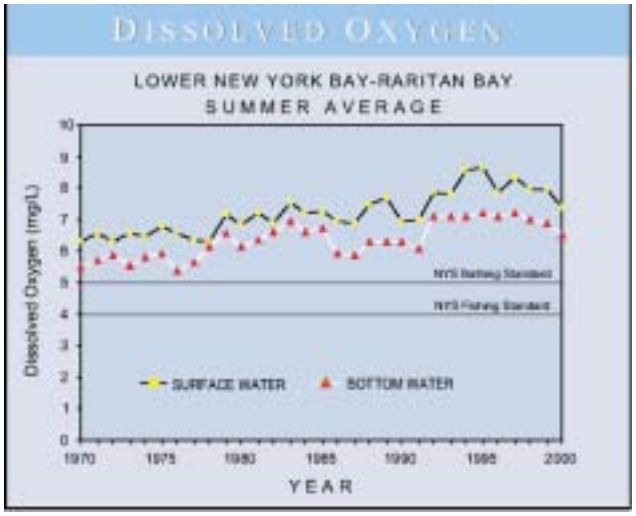
Average DO concentrations in Jamaica Bay have shown improvement over the past 30 years; with top waters often reaching DO levels over 8 mg/L since the 1990s.

- **Outer Harbor**



Sanitary water quality as estimated by fecal coliform was superior to the Lower New York Bay – Raritan Bay (collectively, dubbed Outer Harbor) in summer 2000. Examination of seasonal FC numbers shows waters of the Outer Harbor to meet and surpass NYS standards for this area.

Coliform concentrations for Outer Harbor show significant declines from the early 1970s to the present time.



Dissolved Oxygen values for top and bottom waters show excellent compliance with the NYS DO standard of 5 mg/L.

Since 1970, average DO concentration have increased over 1.5 mg/L, from just over 6 mg/L to nearly 8 mg/L for surface waters, and from about 5.5 mg/L to nearly 7 mg/L for bottom waters.

APPENDIX A

QUARTERLY REPORT ON STATUS OF CITY-WIDE FLOATABLES PLAN

City of New York
Department of Environmental Protection
Bureau of Environmental Engineering
Comprehensive City-Wide Floatables Control Abatement Plan

TECHNICAL MEMORANDUM

QUARTERLY REPORT ON STATUS OF CITY-WIDE FLOATABLES PLAN OCTOBER 2001 - DECEMBER 2001

HydroQual Environmental Engineers and Scientists, P.C.
In Association With
HydroQual, Inc.

January 2002
Project No: NYDP4008/89

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GLOSSARY OF ACRONYMS USED IN THIS REPORT

BNR	Biological Nutrient Removal
CAC	Citizens' Advisory Committee
CB-01	Capital Program for replacement of collapsed catch basins
CP	Capital Program (NYC)
CSO	Combined (Sanitary and Stormwater) Sewer Overflow
DEC	Department of Environmental Conservation (NYS)
DEP	Department of Environmental Protection (NYC)
DWF	Dry-Weather Flow
DDWF	Design Dry-Weather Flow
DOS	Department of Sanitation (NYC)
DOT	Department of Transportation (NYC)
HI-3	Capital Program for hooding of catch basins in Phase III areas
HI-S	Capital Program for hooding of catch basins in high-speed roadways
HSV	Harbor Survey Vessel
IFCP	Interim Floatables Containment Program
MOO	Mayor's Office of Operations (NYC)
NYC	New York City
NYS	New York State
OMB	Office of Management and Budget (NYC)
SLR	Scorecard Litter Rating
PS	Pumping Station
USA	Use and Standard Attainment
WPCP	Water Pollution Control Plant
XP-SWMM	Storm Water Management Model, (proprietary version)

OVERVIEW OF PLAN ELEMENTS

REPORTING PERIOD: OCTOBER 2001 THROUGH DECEMBER 2001

Floatables Plan Elements	New Information This Period
1. Ongoing Activities	
-Maintain Street Cleanliness	Yes
-Catch Basin Hooding in Phase I/II Areas	Yes
-Netting/Booming and Skimming	Yes
-Track I Facilities	*
-Maximizing Wet-Weather Flow to WPCPs	Yes
2. Catch Basin Hooding in Phase III Areas	Yes
3. City-Wide Reconstruction of Unhoodable Catch Basins	No
4. City-Wide Catch Basin Re-Inspection Program	Yes
5. Illegal Disposal Control	No
6. Public Education Program	*
7. Pilot Studies and Demonstration Projects	*

* -Please refer to Section 2 of the CSO Quarterly Report.

1. Ongoing Activities

Prior to the issuance in June 1997 of the City-Wide CSO Floatables Plan, the City of New York had been engaged in a number of activities that help to control floatables. Some of these ongoing activities, such as street sweeping and catch basin hooding, were not originally intended for the purpose of reducing floatables discharges. Other activities, such as the Interim Floatables Containment Program, had been instituted specifically for floatables control. This section summarizes the status of these ongoing activities. Chapters 2 through 7 address other activities that were instituted after the June 1997 City-Wide CSO Floatables Plan.

a) Maintain Street Cleanliness

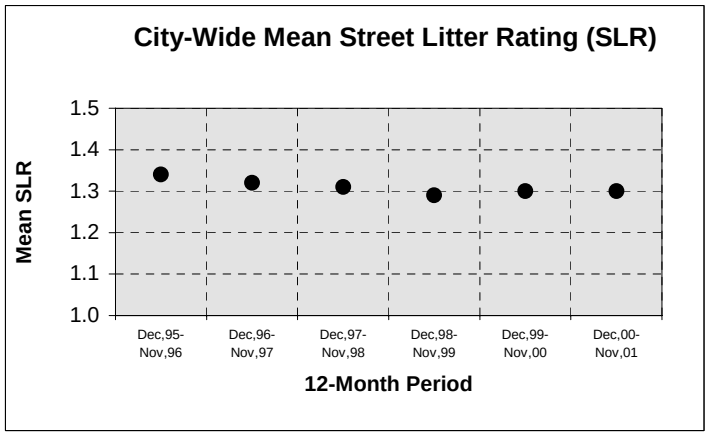
Previous studies have indicated that most floatable litter in New York Harbor can be traced to city streets (HydroQual, 1993). Although many factors can affect the amount of litter on city streets at any given time, the City of New York attempts to control litter levels through a street-sweeping program administered by the Department of Sanitation and through systematic street-litter monitoring, known as the "Scorecard Program," conducted by the Mayor's Office of Operations.

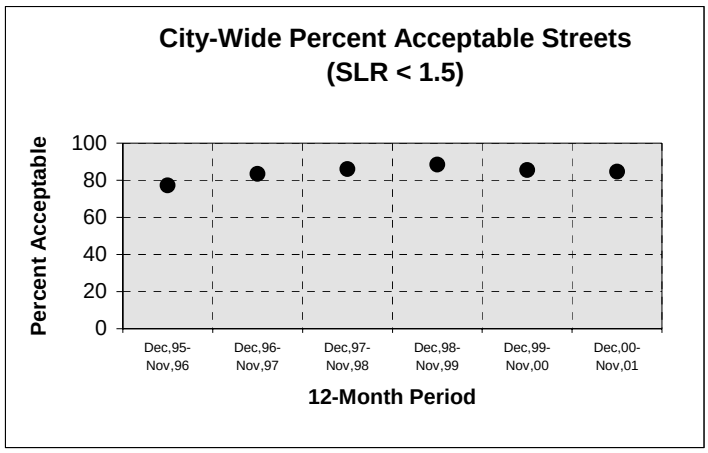
According to the Mayor's Office of Operations, city-wide street litter levels have improved substantially over the past six years. Scorecard Program results for the past six 12-month periods are summarized in the following table and on Figure 1. These results show that street cleanliness has been maintained at or better than 1995 levels.

City-Wide Street Cleanliness, 1995 - 2001

Measure of Street Cleanliness	Results of Scorecard Litter Ratings (SLR)					
	12/95-11/96	12/96-11/97	12/97-11/98	12/98-11/99	12/99-11/00	12/00-11/01
Mean SLR[(1)]	1.34	1.32	1.31	1.29	1.30	1.30
% Acceptable[(2)]	77.2	83.5	86.0	88.4	85.5	84.6
% Filthy[(3)]	4.9	2.2	1.3	0.8	1.5	1.7

Notes:
(1) SLRs follow a 7-point scale from 1.0 (cleanest) to 3.0 (dirtiest).
(2) Percentage of tested blockfaces with SLR less than 1.5.
(3) Percentage of tested blockfaces with SLR greater than 1.74.





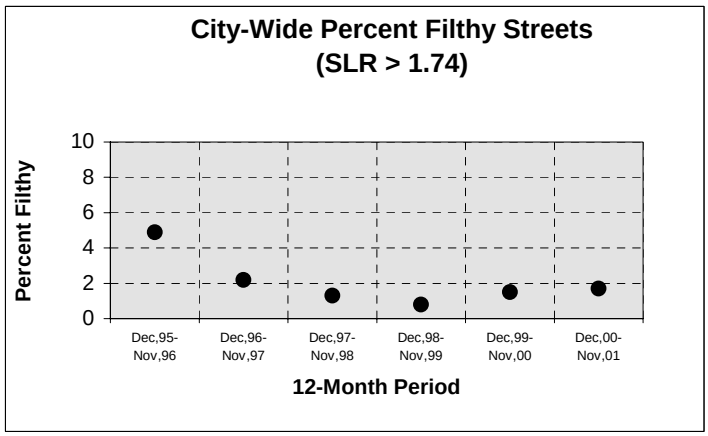


Figure 1. Street Cleanliness

b) Catch Basin Hooding in Phase I / II Areas

Catch basin hooding in Phase I/II areas was completed on or ahead of schedule. A detailed description of these activities, with a summary of the results, is available in previous Quarterly Reports and will not be repeated here.

c) Netting/Booming and Skimming (Interim Floatables Containment Program)

As of November 30, 2001, the IFCP included 19 boomed sites and 4 netted sites draining a total of approximately 58,600 acres. As shown in the table below and on Figure 2, the total volume of floatable material retrieved annually from these sites has varied between about 430 and 1,800 cubic yards. These retrievals are affected by many factors, including the number and efficiency of IFCP sites, street cleanliness, catch basin hooding, and weather. These factors are being analyzed to determine whether the overall decline in retrievals may be attributed to increased catch basin hooding in upland areas.

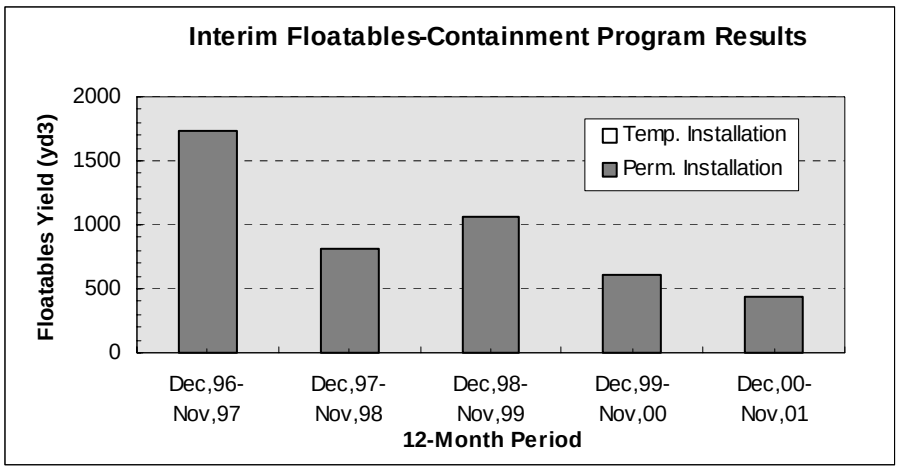


Figure 2. Floatable Material Retrieved from IFCP

As shown on Figure 2 and in the table below, the most recent 12-month period experienced lower yields than in previous years. Overall, a number of sites have yielded lower-than-expected volumes of floatables. Lower-than-average rainfall during the most recent period may have also played a role. An investigation into the reasons for the low yields is presently being conducted. This work includes operations data analysis, containment structure review and containment structure inspection. A report will be prepared following completion of inspections and analysis.

Interim Floatables Containment Program Results, 1996[(1)] - 2001

	12/96-11/97	12/97-11/98	12/98-11/99	12/99-11/00	12/00-11/01
No. Sites[(2)]					
Permanent	21	23	23	21	21
Temporary	1	0	0	2	2
Total	22	23	23	23	23
Volume [cy][(3)]					
Permanent	1,728	811	1062	611	431
Temporary	4	1	0	0	0
Total	1,732	812	1062	611	431

Notes:
[(1)] Volume measurements began 7/95.
[(2)] Maximum number of sites operating during period.
[(3)] Total volume of floatables retrieved from sites during period.
[(4)] "Temporary-status" sites feature lower-quality equipment than "Permanent-status" sites.

In addition to the IFCP netting and booming sites, there are two additional sites from which DEP has recently agreed to collect material on an as-needed basis. These sites are located at Buttermilk Channel (at the intake to the water tunnel) and near Bowery Bay at the Ogden Fuel Services site. Both sites are boomed. From September through November 2001, 25 cubic yards of material was collected from the Buttermilk channel site (including material collected by the Transportation Section). Nothing was observed at the Ogden Fuel services site.

DEP also conducts retrievals of large floating debris using the *Cormorant* skimmer vessel throughout New York Harbor. During September through November 2001, the *Cormorant* retrieved a total of approximately 51 tons of floating debris, including roughly 5 tons of trash. Most of the remaining material was comprised of wood from decayed piers and derelict vessels.

No community clean-up activities were reported during this period.

d) Track I Facilities

Please refer to Section 2 of the CSO Quarterly Report.

e) Maximizing Wet-Weather Flow to WPCPs

HydroQual visited Red Hook and Owls Head WPCPs on November 8, 2001 to tour the plants and conduct an interview with the plant superintendents and process engineers. During the site visits, plant layouts, operations and wet weather operating issues were discussed and questions on the operating data for FY2000 were clarified. Information gathered from the site visits was incorporated into the overall analysis of wet-weather capacity of the plants. On November 26, 2001, HydroQual conducted a wet weather operations presentation to NYCDEP based on the plant data analysis and site inspections. At that meeting it was determined that HydroQual would develop wet weather operating plans for the Red Hook plant and one other plant (possibly Coney Island).

2. Catch Basin Hooding in Phase III Areas

Non-priority ("Phase III") areas of the city are not subject to Consent Order requirements for catch basin inspections and hooding. However, DEP is proceeding with catch basin inventory and hood replacement operations in Phase III areas. Based on the Catch Basin Survey, a total of 40,773 structures have been found in Phase III areas, 35 percent more structures than DEP had previously estimated in these areas. Of these structures, about 73 percent are basins (that is, structures connected directly to the sewer) and about 14 percent are hoodable inlets (structures not connected directly to sewer and having a sump depth of greater than 27 inches). The remaining 13 percent of structures are inlets with sump depths of less than 27 inches, which DEP does not consider candidates for hoods.

Figure 3 summarizes the hooding program in Phase III areas. About 13 percent of all Phase III structures are not candidates for hooding, about 54 percent structures were found hooded, 23 percent have been installed with hoods as part of this program, and the remaining 10 percent of structures are still missing hoods.

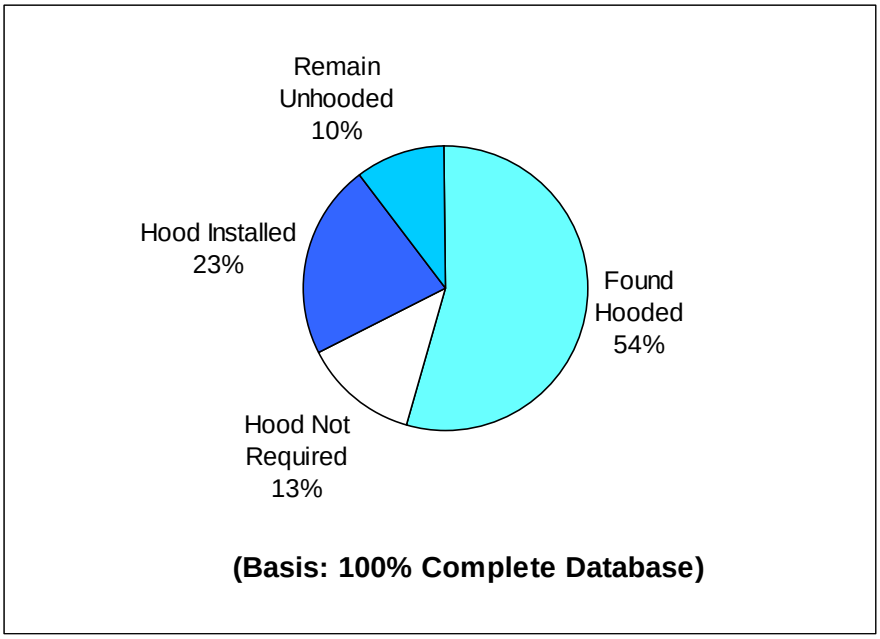


Figure 3. Status of DEP Hooding Program (Phase III)

3. City-Wide Reconstruction of Unhoodable Catch Basins

The ongoing catch basin hooding program continues to identify basins that cannot be hooded due to physical conditions requiring extensive repairs or reconstruction for hooding. DEP is reviewing the various conditions that preclude normal hooding and is assessing how many basins can be "retrofitted" with modified hood designs. Retrofitting is desirable because it can be done more quickly and cost-effectively than reconstructing the basins. DEP has developed prototype versions of modified hoods to be used in situations where a normal hood cannot be used because:

1) the exit pipe is too close to the top of the basin (15 percent of unhoodable basins),

2) the back wall of the basin is too deteriorated to support hood hanger hooks (15 percent of unhoodable basins),

3) steel plates above the exit pipe preclude hanging a normal hood (1 percent of unhoodable basins), and

4) the exit pipe is located in a corner of the basin (3 percent of unhoodable basins).

DEP has initiated a pilot program to evaluate whether the modified hood designs provide adequate performance over a reasonable time period. From March through June 2000 and as part of this pilot program, 48 of the 60 catch basins in the Queens 10 community district that had been previously identified as requiring reconstruction for hooding, were fitted with conventional

or modified hoods. The other 12 basins have been slated for structural repair or catch basin replacement. Although installation of modified hoods was successful, DEP plans to reconstruct all unhoodable basins so that they conform to the Department's design standard (which accommodates a hood).

Catch basin reconstruction is provided for in Capital Program CB-01, which appropriates $6 million annually for replacement of collapsed catch basins and associated work required to make sidewalks handicapped accessible. The funding for CB-01 is above and beyond the existing levels needed to address normal repair work.

In addition to the catch basins being identified for reconstruction, and based on estimates by Liro Consulting Engineers, P.C., there are roughly 1,067 catch basins that cannot be inspected and hooded as part of the ongoing program because they are located in "high-speed roadways" and as such require DOT permits as well as special safety equipment. Liro Consulting Engineers, P.C. has visited these high-speed sites to determine the need for safety measures, lane closures, etc., and contract specifications were completed for this project (MI-4) by January 2001. National Water Main was selected as the contractor to perform this work and is expected to start in the Spring of 2002.

4. City-Wide Catch Basin Re-inspection Program

As a follow-up to the catch basin hooding program (discussed in Section 1b), the Consent Order also requires that all catch basins in Phase I and Phase II areas be re-inspected every two years to confirm that hoods remain in place. These two-year re-inspection cycles are to commence upon completion of the initial hooding process, for which the milestone dates were February 1998 (Phase I) and February 1999 (Phase II). DEP completed initial hooding ahead of schedule, in December 1997 (Phase I) and September 1998 (Phase II).

The Status of DEP's reinspection program is as follows:

Reinspection Round	Phase	Completion
1	1	December 1999
1	2	September 2000
2	1	January 2002[(1)]

[(1)] Anticipated

According to DEP, all missing hoods are being replaced within 90 days of the inspection, as per the Consent Order.

HydroQual will be assisting the Department in the reinspection program as part of a change order to the Catch Basin Inspection and Hooding Project. HydroQual's activities are expected to start in March of 2002.

DEP compiled the results of the first round of Phase I re-inspections and determined that, of the 29,383 basins that had been hooded initially, just under 3.3 percent required re-hooding over the two-year re-inspection cycle (as shown below). This equates to an annual hood-dislodge rate of about 1.6 percent.

Status of Catch Basin Re-Inspection For Hoods[(1)] – Phase I

Community Board	Number of Basins(2)	Total Hoods Replaced	Rehooding Percentage(3)
BX01	772	75	9.7%
BX02	595	3	0.5%
BX03	536	46	8.6%
BX04	774	1	0.1%
BX05	590	38	6.4%
BX07	682	48	7.0%
BX09	1,612	23	1.4%
KG04	574	23	4.0%
KG06	1,040	6	0.6%
KG07	887	93	10.5%
KG10	1036	25	2.4%
KG12	1,515	27	1.8%
KG18	2,760	65	2.4%
MN01	621	3	0.5%
MN02	859	2	0.2%
MN03	679	6	0.9%
MN09	541	8	1.5%
MN10	472	20	4.2%
MN11	438	30	6.8%
MN12	824	31	3.8%
QN01	2,046	116	5.7%
QN02	2,032	90	4.4%
QN10	2,875	113	3.9%
QN14	2,168	44	2.0%
SI01	2,455	29	1.2%
Total	**29,383**	**965**	**3.3%**
	Annual Hood-Dislodge Rate		**1.6%**

[(1)] From information provided by NYCDEP, March 2, 2000
[(2)]Total number of basins that do not require extensive repairs for hooding
[(3)]Rehooding percentage over the 2-year re-inspection cycle.

5. Illegal Disposal Control

In 1998, HydroQual helped DEP and DOS develop a protocol to record and report locations of suspected illegal shoreline trash-dumping. This "Illegal Dumping Notification" program has coordinated efforts between DEP's Harbor Survey Program, DEP's Sentinel Monitoring Program, and two branches of DOS, the Environmental Police and the Sanitation Police. The Environmental Police handle information related to hazardous substances (such as medical waste and asbestos), and the Sanitation Police handle information related to illegal trash dumping.

Data from 2001 has not yet been received from DEP's Marine Sciences Section. An update will be forthcoming in the next Quarterly Report.

6. Public Education

Please refer to Section 2 of the CSO Quarterly Report.

7. Pilot Studies and Demonstration Projects

Please refer to Section 2 of the CSO Quarterly Report.

APPENDIX B

CITIZEN ADVISORY COMMITTEE ON WATER QUALITY – AGENDA

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AGENDA

CITIZENS ADVISORY COMMITTEE
on

WATER QUALITY

MEETING NO. 47
Wednesday, October 10, 2001
3:00 p.m. - 6:00 p.m.

Real Estate Board of New York
570 Lexington Avenue, New York, NY

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1. Opening Remarks -- Review of July 11, 2001 Meeting Summary	CAC co-chairs NYCDEP
2. The Containment Assessment & Reduction Project (CARP) & PCBs in New York Harbor	Dr. Simon Litton, NYSDEC
3. Reducing Mercury in New York City Wastewater System	Marc Sussman, Dental Recycling North America

4. Other Business

5. Next Meeting, 11/14/01

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AGENDA

CITIZENS ADVISORY COMMITTEE
on

WATER QUALITY

MEETING NO. 48
Wednesday, November 14, 2001
3:00 p.m. - 6:00 p.m.

Real Estate Board of New York
570 Lexington Avenue, New York, NY

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1. Opening Remarks -- Review of October 10, 2001 Meeting Summary	CAC co-chairs NYCDEP
2. Update / Summary of the CSO / Floatables Project	William Leo, HydroQual
3. Update / Summary of the USA Project	William McMillin, HydroQual
4. Reflections / Assessments – Discussion	CAC, NYCDEP

- Accomplishments of the CAC
- Concerns and agenda moving forward
- Ways that the CAC can continue to be effective for NYCDEP

5. Next Meeting