

**Attachment B: Jamaica Bay Watershed Protection Plan Update**

1. WATER QUALITY								
Reduce Nitrogen Loading to the Tributaries and Jamaica Bay								
Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
1a1	Carbon Addition	Propose Level 2+ Advanced Basic BNR with carbon at the 26th Ward WPCP and Level 2 Advanced Basic BNR at the Jamaica WPCP.	TBD	Negotiations ongoing with NYSDEC. NYCDEP developed a White Paper, Jamaica Bay: An Integrated Solution.	26th Ward WPCP: \$61 million and Jamaica WPCP: \$52 million <b>Figures have been added.</b>	Partial	DEP	See attached status report. 26th Ward chemical facilities funding has not yet been identified. NYCDEP developed a White Paper, Jamaica Bay: An Integrated Solution. Provides the framework for a holistic strategy for improving water quality and habitat of Jamaica Bay.
1a1	Interim Carbon Addition	To implement nitrogen reductions in the near term, construct interim carbon addition facilities at 26th Ward WPCP and ship Jamaica WPCP centrate to interim facility for processing.	36-40 months	TBD	TBD	TBD	DEP	See attached status report.
1a3	Minimize Centrate Processing from other WPCPs in Jamaica Bay	NYCDEP will continue its efforts to minimize transshipment of sludge for processing in Jamaica Bay.	Ongoing	NYCDEP continues to limit shipments.	NA	NA	DEP	See attached status report. Upgrade will accommodate daily transshipments instead of a few times a week to ensure all Jamaica sludge is treated via the Separate Centrate Treatment facility at 26th Ward.
1a2	Algal and Sea Lettuce Harvesting Pilot Study	Harvest excess algae and sea lettuce to reduce nitrogen and produce biodiesel fuels.	Design anticipated to begin Summer 2009.	Contracting process underway for initiation in early 2009.	\$387,000	Y	DEP	See revised schedule information.
1a2	Algal Turf Scrubbers Pilot Study	Remove nutrients and contaminants through benthic organisms, bacteria and phytoplankton.	Design anticipated to begin Summer 2009.	Contracting process underway for initiation in early 2009.	\$350,000	Y	DEP	See revised schedule information.
1a2	Oyster Reef Pilot Study	Provide clearer water, improved fisheries habitat through reintroduction of oyster reef.	Design anticipated to begin Summer 2008. <b>Contractor by mid-2008; initiate pilot in Fall 2008. Note that the oyster and eelgrass studies were originally a single implementation strategy.</b>	Contracting process underway for initiation in early 2009.	\$600,000	Y	DEP	See revised schedule information.
1a2	Reintroduction of Eel Grass ( <i>Zostera marina</i> ) Pilot Study	Fish habitat/Decreased wetland erosion loss.	Design anticipated to begin Summer 2008. <b>See above.</b>	Contracting process underway for initiation in early 2009.	\$350,000	Y	DEP	See revised schedule information.
1a2	Ribbed Mussel Pilot Study	Improve water quality and increase fish habitat.	Design anticipated to begin Summer 2008. <b>Contractor by mid-2008; initiate pilot in Fall 2008</b>	Contracting process underway for initiation in early 2009.	\$300,000	Y	DEP	See revised schedule information.
Reduce CSO and Other Discharges to Improve Pathogen and DO levels								
Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
1b1	Expanded Sewer Cleaning Program	Clean sewers programmatically; increase amount of cleaning per year, cycling through every 10-14 years.	Pilot project 2007; annual program to clean 7% of sewers. <b>Pilot project originally set for 2008</b>	5% of sewers in the 26th Ward Drainage area were cleaned. Sewer maintenance budget subject to funding availability.	\$2.7 million (in 2008 dollars) annually plus new personnel and vehicles (\$876,500) . Budget constraints may impact implementation. <b>Previously approx. \$2.5 M.</b>	Partial <b>Funded through 2009.</b>	DEP	See attached status report.
1b1	26th Ward/Fresh Creek Sewer Cleaning	Clean sediment from selected sewers in 26th Ward.	Final design in 2007. Project scheduled to be completed in 2010. <b>Begin on or before June 2010.</b>	Cleaning has begun and expected completion is June 2010.	Funding slightly more than \$4 million.	Y	DEP	Notice to Proceed issued December 2007; contractor mobilization is in process. Cleaning will remove up to 16,500 tons of debris from combined sewers.
1b1	Expanded Interceptor Inspection and Maintenance	Inspection program to determine cleaning and maintenance needs throughout the City. Pilot project in fall to inspect E Rockaway interceptor.	Pilot studies in 2008; Citywide inspection completed in 2010.	Pilot completed; Citywide inspection to be initiated.	\$17,000 for pilot; \$3 million over next 1-2 years. <b>\$300,000 for pilot; \$4-5 million to complete Citywide inspection program.</b>	Y	DEP	See attached status report.

	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Sewer & Treatment Facility Infrastructure Improvements	1b2	26th Ward 50 MGD Expansion	Increase wet weather capacity from 170 MGD to 220 MGD.	Final design in 2010. Project scheduled to be completed in 2015.	Modification to schedule pending.	\$467 million Previous cost = \$468 million.	Partial	DEP	See revised schedule information.
	1b2	Paerdegat CSO Detention	50 MGD facility to capture CSOs.	Construction to be completed in 2012.	Tank to be online at end of 2009; construction to be completed by May 2011.	\$318 million	Y	DEP	See revised schedule information.
	1b2	Inflow/Infiltration Study with Corrective Measures	Identify and resolve sewer system anomalies.	TBD	NA	\$2 million/yr for engineering and \$5 million/yr for corrective measures	N	DEP	Study not funded.
	1b2	Regulators in Bergen Basin	Automation for #2; enlarge #3 orifice; new 48" siphon under Belt Parkway.	Regulator #2 construction to begin in 2007. Remainder TBD. Final design initiated in Feb. 2005 and completed Nov. 2006. Construction to begin late 2007 and completion estimated for June 2010.	Construction for Regulator #2 began in 2007; projected completion 2010.	\$14 million for Citywide Contract	Partial	DEP	See revised schedule information. Regulators and new siphon sewer are currently proposed to be constructed between 2015 and 2017. DEP is working on expediting the project for completion in 2015.
	1b2	Complete Storm Sewer Build out in Rockaways	Approximately 2,500 acres remain for storm sewer construction in the Rockaways	Ongoing Previously TBD.	Drainage plans are being developed; five projects have been initiated.	\$500 million	Partial	DEP	See revised schedule information. The current five projects will address 371.8 acres.
	1b2	Hendrix Creek - Evaluating In-line Storage	Evaluation of a bending weir that would be placed on top of the existing concrete weir to increase in-line capture of CSO discharges.	Available when final LTCP is released in August 2012.		No details provided.			
	1b2	Laurelton High Level Storm Sewers	Plan to design and construct HLSS and other improvements in the Laurelton area.	Once the Southeast Queens Drainage Plan is complete in Jan. 2008, construction time frames will be developed.		No details provided.			
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
New Sanitary and Storm Sewers	NA	Southeast Queens Drainage Plan This was not an implementation or management strategy; it may be a renamed Laurelton HLSS implementation strategy (see above).	Sewer modifications to convert existing system to a mainly separated system with High Level Storm Sewers in the Laurelton area.	The first stage of the Drainage Plan completed by Jan 2008. Then cost and project timeline will be developed.	The first stage of the Drainage Plan completed in May 08; total cost and project timeline in development. The first three projects are currently under development.	TBD	Partial	DEP, DDC	See revised schedule information. Approximately 25 projects in the Laurelton Area comprise the first phase of the Drainage Plan. The Drainage Plan was amended to incorporate changes from Jamaica Rezoning.
	1b3	Warnerville / Meadowmere Sewer Project	Sanitary sewers, pump station and force main to deliver sewage to Jamaica WPCP.	Under construction; to be completed in 2009.	Modification to schedule pending.	\$30 million	Y	DEP	67% construction completion; see revised schedule information.
	1b3	Jewel Streets Storm and Sanitary Sewers	Install storm and sanitary sewers.	In design Construction to begin by 2011	Joint NYCDEP and NYCDOT project is funded for FY 2013. Currently In Design by DDC.	\$26 million Additional \$15 million by DOT.	Y	DEP, DOT, DDC	See revised schedule information.
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Comments
Boat Pumpouts	1b4	Install a Third Boat Pumpout Facility at Rockaway WPCP and Seek a No Discharge Designation for Jamaica Bay These were originally 2 implementation strategies: Install a Third Pump out Facility at the Rockaway WPCP and Pursue Adding Additional Boat Pump-outs in Jamaica Bay and Obtaining a No Discharge Designation for the Bay.	Reduce wastewater discharges from recreational boats directly into Bay, and will initiate proceedings to create a No Discharge Zone (NDZ) for Jamaica Bay.	Operational for 2008 boating season. Proceeding for NDZ TBD.	Installed late summer 2008 and operational for latter half of 2008 boating season. DEP is pursuing NDZ with NYSDEC.	\$52,000 Estimated \$43,000 total.	Y	DEP	See attached status report. Funding for NDZ designation has not been secured. Clean Vessel Act will reimburse 75% of the purchase and construction of the project to a maximum of \$35,000. Also, the O&M Grant Program helps with funding in annual upkeep costs.

Increase DO levels to Improve Ecological Productivity									
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Remove CSO Sediment Mounds	1c1	Dredge and Recontour Hendrix Creek	To address CSO mounds, DO and ecological goals	Final Design complete. Dredging schedule TBD.	Permit application submitted to NYSDEC and public notice was issued July 2008. Dredging to begin 12 months after permit approval.	\$15.7 million Previously TBD.	Partial	DEP	See revised schedule information.
	1c1	Pursue Dredging of Paerdegat Basin, Fresh Creek, Bergen Basin and Thurston Basin	To address CSO mounds, DO and ecological goals	TBD	RFP for planning and design scheduled TBD.	\$203 million for aeration and dredging Originally, TBD.	Partial	DEP	See revised schedule information.
	1c1	Support Army Corps ecological restoration projects in Paerdegat Basin and Fresh Creek	To address DO and ecological goals.	TBD	NA	NA Originally, TBD.	NA	USACE	See revised schedule information.
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Dissolved Oxygen	1c2	Pursue Aerators at Fresh Creek, Bergen Basin and Thurston Basin. <i>This was originally 2 implementation strategies.</i>	Add oxygen to improve dissolved oxygen levels.	Design from 2015 to 2017. Construction from 2018 to 2021.	NA	\$112.3 million Fresh Creek \$82 M/ \$112 M Bergen and Thurston	N	DEP	Pending NYS DEC comments.
	1c2	Investigate Potential for Future Aeration in other CSO and Non-CSO Tributaries	Determine the need and efficacy of in-stream aeration for other creeks in Jamaica Bay.	TBD	NA	TBD	N	DEP	No change.
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
	1d1	Enhanced Scientific Monitoring Program <i>Appears to include 3 implementation strategies related to ecosystem monitoring and collaboration among partners.</i>	Develop enhanced water quality and ecological monitoring program. Coordinate monitoring among various entities.	Announce enhanced monitoring program Oct 2008.	Draft plan to be developed by 2009; will need multi-agency coordination over the next year	Substantial funding required. Originally, TBD.	N	DEP with other agencies/ research institutions	See status report.

2. RESTORATION ECOLOGY									
Salt Marsh Restoration	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
	2a1	Establish Salt Marsh Island Wetlands Priority Restoration Review Board	Board would review restoration logistics and begin to establish a priority list of wetland restorations.	Review Board to be initiated in November 2007. Previously TBD.	Committee formed November 2007 and met November 11, 2007, December 4, 2007, February 8, 2008 and next meeting is scheduled for week of October 13, 2008	NA Previously noted that "Prioritization process will determine restoration costs."	NA	Multi-agency	See attached status report.
	2a2	Marsh Island Wave Attenuator Pilot	Install prefabricated attenuators to reduce wetland erosion loss.	Design anticipated to begin Summer 2009. Pilot to be developed under proposed contract, retain contractor by mid-2008, pilot in Fall 2008.	Part of contract to be initiated in early 2009.	\$576,000	Y	DEP	See revised schedule information.
	2a1	Marsh Island Restoration Originally this also included the 8 JBERRT sites.	Elders Point and Yellow Bar.	Summer 2008 - Elders Point Previously TBD.	Elder Point start date TBD	\$3 million from DEP -cost sharing from others. Previously were unfunded.	Y (NYCDEP portion)	USACE, DEC, DEP	See revised schedule information. Contract delays have held up this project. Federal Funds also must be procured. DEP has allocated \$4.2 million for its portion.
Land Acquisition and Restoration Along Periphery of Bay	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
	NA	Complete Restoration of Penn Avenue Landfill and Fountain Avenue Landfill This is listed as a current program, not an implementation strategy.	Ecological restoration of remediated inactive hazardous wastes sites.	Landfills currently in construction and will be completed in 2008;	Landfill restoration completed by Fall 2008	\$20 million for upland restoration components.	Y	DEP	See attached status report
	NA	Paerdegat Basin Restoration This is listed as a current program, not an implementation strategy.	Stormwater to be directed into the restoration area to create wetlands and reduce pollutants; improve water quality.	In design stage, expected to be completed in 2008	Design completed in 2008.	Approximately \$10 million	N	DEP	Funding for Paerdegat restoration construction pending.
	2b1	Transfer HPD Properties in the Edgemere Section of Queens to Parks	Continue to transfer 10 acres of land; design and implement restoration project. Previously 6 acres.	Transfer to occur shortly. Restoration efforts TBD.	HPD and DPR are discussing transfer options.	None.	N	DEP, HPD, DPR	Land committed for restoration and stormwater projects; restoration under negotiation with DEC.
	2b1	Pursue Acquisition and Restoration Efforts in Vacant Areas Originally was "cluster" areas.	Determine status of subject properties; design and implement stormwater BMPs or restoration.	Field verify sites, place holds on property within 6 mos. Restoration TBD.	DEP met with DCAS and put holds on suitable property.	TBD	N	Multi-agency	See attached status report.
	2b1	Acquire Seagirt Avenue Properties in Rockaway, Queens	Leverage funds from multiple agencies to acquire lands.	TBD	NA	NA	NA	Multi-agency	No change.
	2b1	Track and Inventory Restoration Sites	Continue to develop and distribute the Jamaica Bay Conservation and Restoration Project Inventory.	No details provided.		No details provided.			
	2b2	Create a Current Inventory and Prioritize Restoration Efforts is missing, though it may have been rolled up into the work of 2b3 below.	Complete updated inventory of all existing upland habitat locations.	Approx. 1 year.		\$400,000			
	2b3	Update and Inventory Dune and Beach and Other Habitats	Update inventory of existing habitats and coverage using GIS.	Begin inventory update in 2008; approximately 1 year to complete. Contractor anticipated to be retained mid-2008; work initiated in Fall 2008.	Awarded Environmental Protection Fund grant in June 2008; project expected to begin in Fall 2008 when funding is in place.	\$400,000 (Not additional cost, as cost in previous item includes funding for this.)	Y	DEP, NYS Governor's Environmental Protection Fund	See revised schedule information. DEP has committed to 50/50 match with grant funding awarded by State.
	2b5	Continue Beach Clean Up Efforts	NYCDEP sponsored clean-ups and plantings; extend trash collection beyond Labor Day	Ongoing spring and fall shoreline cleanups Previously, no schedule was established.	On going.	Use of existing DEP staff and equipment Previously noted that trash receptacle collection would cost \$125,000 for DPR and \$80,000 for NPS staff to maintain trash receptacles beyond Labor Day to Oct. 21 along beaches, parks, shorelines.	Y	DEP, DPR, NPS	See attached status report.
	2b6	Reduce the Extent of Invasive Vegetation	Promote the importance of invasive species management	Ongoing Previously TBD.	Awarded Environmental Protection Fund grant in June 2008; project expected to begin in Fall 2008 when funding is in place.	TBD	TBD No details provided.	DEP, NYS Governor's Environmental Protection Fund	See revised schedule information. DEP has committed to 50/50 match with grant funding awarded by State.
	2b4	Determine RTE Restoration Priorities and Targets	Determine RTE Restoration Priorities and Targets in coordinate with relevant stakeholders.	Establish priorities species by October 2008.	Awarded Environmental Protection Fund grant in June 2008; project expected to begin in Fall 2008 when funding is in place.	NA Costs assumed to be minimal and inclusive of existing site assessment and restoration efforts.	NA	DEP, NYS Governor's Environmental Protection Fund	See revised schedule information. DEP has committed to 50/50 match with grant funding awarded by State.

### 3. STORMWATER MANAGEMENT THROUGH SOUND USE

#### On-Site BMPs for New and Existing Development

	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Pilot and Demonstration Projects	3a1	Green Roof / Blue Roof Pilot Study	Monitor effectiveness of blue roof vs. green roof on two existing commercial buildings. Compare results between blue and green roofs.	Design anticipated to begin late 2007. <b>Nine months to select site, design and install. Monitoring over a 3 year period to evaluate effectiveness.</b>	Contract awarded and design to begin October 2008; installation in 2009, and monitoring and reporting to be completed in 2011.	Originally \$352,500.	Y	DEP	See revised schedule information.
	3a1	Rain Barrel Give-away Pilot Study	Distribute 1,000 rain barrels to homeowners.	Design anticipated to begin Summer 2008. <b>Pilot to be initiated in Summer 2008 and monitored over 2 years.</b>	250 rain barrels distributed as of July 2008; Contracting process underway for initiation for remaining program in early 2009.	\$138,000	Y	DEP	See attached status report.
	3a1	Parking Lot Pilot Study	Two 1.5 acre parking lots retrofitted to comply with new DCP zoning regulations.	Design anticipated to begin late 2007. <b>Nine months to select site, design and install. Monitoring over a 3 year period to evaluate effectiveness.</b>	Contract awarded and design to begin October 2008; installation in 2009, and monitoring and reporting to be completed in 2011.	\$290,000 for design/construction; Plus monitoring costs	Y	DEP	See revised schedule information.
	3a1	NYCHA or HPD Pilot Study	Retrofit an existing NYCHA or HPD property with infiltration and detention BMPs.	Design anticipated to begin Summer 2009. <b>Pilot in Summer 2009 and program to be monitored for 2 years.</b>	Contracting process underway for initiation in early 2009	\$352,500 for design/construction; Plus monitoring costs <b>\$550,000 total.</b>	Y	DEP, NYCHA	See revised schedule information.
	3a1	Evaluate Rooftop Detention	Promote on new construction; assess existing large rooftops	Begin in late 2007.	NA	\$40,000 (see also cost sharing below) <b>Figure not previously given.</b>	Y	DEP & SWCD	See attached status report.
	3a2	Porous Pavement on DEP Property	Install and monitor pervious pavement on DEP facility parking lots and other areas.	Design anticipated to begin Summer 2008.	Contracting process underway for initiation in early 2009	\$352,500 for design/construction; Plus monitoring costs <b>\$442,000 total</b>	Y	DEP	See revised schedule information.
Economic Incentives									
	3a1	Stormwater Rate Structure Study	Evaluate alternative water, sewer, and stormwater rate structures and potential credit programs for BMPs.	Anticipated to begin in early 2008. <b>Anticipated to begin late 2007 and complete in mid-2009.</b>	Study began in July 2008 and will be completed in June 2009	TBD	Anticipated shortly	DEP	See attached status report.
	3a1	Incentive Programs	Being investigated under the Mayor's Interagency Task Force	Mayor's Interagency Task Force Report anticipated to be completed in Fall 2008.	NA	NA	NA	Mayor's Office	State Legislature recently approved a green roof tax abatement program for the City; Bill # A11226 will officially be written as law in Fall 2008. Additional information about incentive programs will be included in Mayor's Office's Sustainable Stormwater Management Plan, per Local Law 5 (public review draft to be completed October 2008).
	3a1	Cost-Sharing Program Investigations	Develop potential framework for design/build services incentive program.	Begin in late 2008. <b>Begin in Fall 2007 and complete in late 2008.</b>	NA	\$40,000	Y	DEP & SWCD	Status report pending.
	3a1	Other Incentives	Streamlining development processes for developments that include green buildings and low impact development.	No details provided.		No details provided.			
	3a3	Water Conservation Program <i>This appears to be a roll up of 3 implementation strategies: Toilet, Urinal and Clothes Washer Rebate Programs; Fixture Replacements in Public Buildings; Performance-Based Efficiency Projects to be Issued.</i>	60 MGD savings through low flow fixture rebates and cost sharing.	2008-2012	Program to be initiated in 2009	\$186 million	Partial	DEP	Software is under development for applications processing. Program will be initiated in 2009. Funding available only for first phase; other funding is deferred.

	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Regulatory and Design Changes	3a1	Zoning Code Parking Lot Design Requirements	Add landscaping and bioretention components to commercial and community facility parking lots over 6,000 sf or 18 spaces.	Text change certified on June 18, 2007. Currently in approval process.	Parking lot text amendment adopted on November 28, 2007.	NA	NA	DCP with DEP and DPR	Completed: see revised schedule information.
	3a1	Code Review	Review Sewer Code and make recommendations for potential revisions to facilitate BMP installation.	Anticipated to begin Summer 2008. Contractor anticipated to be retained by mid-2008; the review will be conducted in conjunction with the BMP Design Manual.	Task force formed in March 2008; contracting process underway for initiation in early 2009.	NA \$250,000, includes BMP Design Manual	NA	DEP	See attached status report.
	3a1	BMP Design Manual	Create companion guidance document to sewer code revisions specific to NYC conditions.	Anticipated to begin Summer 2008. Retain contractor by mid-2008. Revisions concluded by late 2009.	Contracting process underway for initiation in early 2009.	NA See above.	Y	DEP	See revised schedule information.
	3a1	CEQR Technical Manual Revision	Revise CEQR Technical Manual to include a specific section to address proposed developments in Jamaica Bay.	End of FY 2008 Scheduled for Summer 2008.	Revisions anticipated to be completed by December 2009.	NA	NA	DEP/OEC	See revised schedule information. Revisions to the natural resources and infrastructure sections are under development to include Jamaica Bay specific information.
	3a1	Monitor Benefits of BMP Implementation	Develop indicators to track effects of BMP installations throughout the City over time.	To begin once various BMP pilot contracts begin.	NA	TBD	TBD	DEP & Mayor's Office	See attached status report.
	3a2	Zoning Code Pervious Surfaces Requirements	Potential front yard pervious requirements in R1-R5 zoning districts.	Fall 2007	Yards text amendment adopted on April 30, 2008.	NA	NA	DCP	Completed: see revised schedule information.
	3a2	Parking Lot Pilot Study mentioned as an implementation strategy again (see above).							
	3a2	Code Review	Need for additional standards and specifications to allow for porous paving in the City.	TBD.		TBD.			
Off-Site BMPs on Streets, Sidewalks, Highway Right-of-Ways, and Vacant Lands									
Pilot and Demonstration Projects	3b1	Belt Parkway Bridges Demonstration Project	Attenuate and reduce the direct stormwater discharge through BMPs.	In design According to Plan, final designs to be completed in 3 months. BMPs are expected to be constructed 3-5 years from DOT's project start date.	Design completed in 2008; construction scheduled to begin 2010, and completed in 2014.	\$300,000 for design (DEP); \$1.5 million for construction (DOT) \$95,000 for design/ \$1.2 M for Rockaway Bridge/ TBD for Paerdegat Bridge	Y	DOT, DEP	See revised schedule. Innovative bioinfiltration swale with diversion piping provides water quality volume treatment; can safely convey the 10 year storm.
	3b1	Streetside Infiltration Swales Pilot Study	Install three swales on six sites to capture runoff from a roadway.	Design anticipated to begin late 2007. Pilot to begin in 2007. Nine months to select site, design and install. Monitoring over 3 year period.	Contract awarded and design to begin October 2008, installation in 2009, and monitoring and reporting to be completed in 2011.	\$510,000 for design/construction; Plus monitoring costs	Y	DEP	See revised schedule information.
	3b1	Constructed Wetlands Pilot Study	Construct wetland to capture runoff from a roadway.	Design anticipated to begin late 2007. Pilot to begin in 2007. Nine months to select site, design and install. Monitoring over 3 year period.	Contract awarded and design to begin October 2008, installation in 2009, and monitoring and reporting to be completed in 2011.	\$510,000 for design/construction; Plus monitoring costs	Y	DEP	See revised schedule information.
	3b1	Tree Pit Pilot Study	Install five enhanced tree pits with stormwater subsurface cistern.	Design anticipated to begin late 2007. Pilot to begin in 2007. Nine months to select site, design and install. Monitoring over 3 year period.	Contract awarded and design to begin October 2008, installation in 2009, and monitoring and reporting to be completed in 2011.	\$112,500 for design/construction; Plus monitoring costs	Y	DEP	See revised schedule information.
	3b3	Vacant Parcels Pilot Study	Implement stormwater parks on additional publicly-owned vacant parcels to capture stormwater runoff.	TBD based on Constructed Wetlands Pilot Study. TBD based on Streetside Infiltration Swales Pilot Study.	NA	TBD TBD based on Streetside Infiltration Swales Pilot Study.	N	DEP	No change.

	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Regulatory	3b1	Zoning Code Review - Street Trees	Potential requirement for new developments/enlargements to provide street trees	Fall 2007	Street trees text amendment adopted on April 30, 2008.	NA	NA	DCP	Completed; see revised schedule information.
Open Space and Greening Projects	3b1	PlaNYC Street Tree Planting	Street tree planting throughout the city including Jamaica Bay watershed.	23,000 trees planted annually citywide.	Plant 15,000 street trees annually citywide by December 2009.	NA \$391M, including Greenstreets projects over the next 10 years	NA	DPR, DEP, & Mayor's Office	From PlaNYC, the City launched the MillionTreesNYC Initiative with New York Restoration Project, and planted "tree one" on October 9 2007. Planted nearly 100,000 trees to date, the majority of which are newly planted street trees, and initiated an aggressive strategy of full-block planting. DEP tree planting accounts for 13% of trees planted.
	3b1	PlaNYC Greenstreets Initiative	Fourteen new Greenstreets within Jamaica Bay watershed.	Fall 2007; 3,000 new Greenstreets citywide by 2017.	Complete 240 greenstreets citywide by December 2009.	NA Part of Street Tree Planting (above)	Mayor Bloomberg's PlaNYC 2030 committed \$15 million for new Greenstreets from 2007 through 2017. PlaNYC also provides \$14.5 million for additional 60 maintenance staff for operation/ maintenance of the sites.	DPR & Mayor's Office	DPR built 17 new Green Streets in the Jamaica Bay Watershed between last Fall and this past Spring: 12 in Queens and 5 in Brooklyn.
	3b1	East New York Community Forestry Management Plan	Increase street tree stocking level in East New York from 52 to 100 percent in the next 10 years. In addition, establish a Friends of Trees Group.	Plant 850 trees in Brooklyn CB 5 over next 10 years through PlaNYC Street Tree Initiative.	Ongoing	NA \$425,000 in outside funding needed; rest of money part of Street Tree Planting (above).	NA	DPR & Mayor's Office	Since publishing the Greening East New York report in June 2007, Parks has planted 1,427 trees in the neighborhood and sponsored one tree stewardship workshop.
	3b4	Baisley Pond Park Project	Using stormwater BMPs, storm sewers will route stormwater into Baisley Pond.	Slated for construction in 2010.	NA	\$3-4 million (estimated)	Y	DEP, DOT	No change.
	3b4	Springfield Park Project	Using stormwater BMPs, storm sewers will route stormwater into Springfield Lake.	In Design; construction is slated to begin in FY 2011. Sewer and roadway reconstruction has been implemented in phases: Phase C has been completed, Phases A and B are in progress, and Phase D is slated for construction in 2009.	NA	\$15 million (estimated)	Y	DEP, DOT	No change; ongoing discussions with DPR about green streets in median.

4. PUBLIC EDUCATION AND OUTREACH									
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Raise Awareness	4a1	Enhance Jamaica Bay-related Educational Curriculum	Educational Resource Directory	Prototype to be completed late 2007. Originally printing and distribution begin in Winter 2008.	To be printed for distribution late 2008.	\$6,000 Originally \$5,000.	Y	DEP, NYCSWCD	See revised schedule information.
	4a2	Organize "State of the Bay" Scientific Symposium	Coordinate/guide scientific investigations and report scientific findings. Inform Plan updates.	First symposium Summer 2008.	First symposium was held on June 27, 2008. Second symposium scheduled for October 28-29, 2008.	\$30,000 Originally \$20,000 plus fees	Y	DEP, NYCSWCD	Status report pending.
	4a2	Create a targeted campaign for developers, residents, and business owners to protect Jamaica Bay	Brochure on importance of the Bay, human activities in watershed, and pollutant reducing practices.	Brochure to be completed in late 2007. Printing and distribution in Winter 2008.	To be printed for distribution late 2008.	\$6000 Originally estimated at \$2000	Y	DEP, NYCSWCD	See revised schedule information.
5. PUBLIC USE AND ENJOYMENT									
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Public Access	5a1	Rockaway /Gateway Greenway	Establish an approximately 20-mile continuous greenway loop around the Bay.	Some portions are complete or nearing completion, others are to be determined.	Construction of the Shore Parkway Greenway, a 2.8-mile stretch between Pennsylvania Ave and 84th St., is now anticipated to be completed during 2008.	NA	NA	DOT, DPR	Required local match was secured for the Shore Parkway Greenway, a 1.9-mile stretch between 84th St. and JFK Airport.
	5a1	Laurelton and Cross Island Parkway Greenways	Establish a 22-mile path through parkland; link between Brooklyn/Queens Greenway and Jamaica Bay waterfront.	Phase I was completed in 2006; Phase II is pending additional funding	NA	NA Originally Phase I cost was \$895,000. Phase II projected cost was \$3.42 M (Federal Enhancement Funding of \$2 M provided and additional \$1.42 M needed)	NA	DOT, DPR	No change.
	5a1	Southern Parkway Path and Conduit Boulevard	Establish a greenway to connect Brooklyn/Queens Greenway system to Jamaica Bay waterfront.	TBD Project has not been implemented. Design and construction are pending acquisition of additional funding.	NA	NA	NA	DOT, DPR	EDC to implement segment along Springfield Blvd and 147th Avenue as part of Springfield Gardens Street Reconstruction project. The balance of the project is currently unfunded.
	5a1	Far Rockaway North Shore Greenway	Establish a greenway to connect Far Rockaway with Rockaway Gateway Greenway	In process with current HUD development.	NA	NA Originally TBD.	NA	HUD	No change.
	5a1	Floyd Bennett Field/Gateway National Recreation Area	Capital projects within Gateway National Recreation Area.	TBD	NA	NA \$30 million, contingent on securing congressional funding	NA	NPS	No change.
	5a1	Shore Parkway: Pennsylvania Avenue to 84th Street	Section of the Gateway Greenway (see above).	Construction stated in April 2007, to be completed in 2007.		\$2,574 M			
	5a1	Shore Parkway Path: 84th Street to JFK Airport	Section of the Gateway Greenway (see above).	TBD		\$1.5 M (Federal Enhancement Funding of \$1.2 M has been provided and the additional \$300,000 in matching funding is required)			
	5b1	Brooklyn/Queens Greenway -Eastern Parkway Extension	Greenway improvement including landscaping, multi-use paths, bike racks, pedestrian ramps, traffic signals, etc.	Design underway; to be completed in June 2010.	NA	NA Originally TBD.	NA	DOT, DPR, DCP	No change.
	5b1	Rockaway /Gateway Greenway: Flatbush Ave.	Section of the Gateway Greenway (see above).	Mostly completed in 1998, improvements needed to pedestrian access and connections to other portions of the greenway.		TBD			
	5b1	3aRockaway /Gateway Greenway: Spring Creek Portion	Section of the Gateway Greenway (see above).	Planning phase ongoing.		TBD			
	5b1	Rockaway /Gateway Greenway: Cross Bay Boulevard	Section of the Gateway Greenway (see above).	Construction mostly complete, improvements to landscaping required.		TBD			
	5b1	Rockaway /Gateway Greenway: Rockaway Boulevard along Beach Channel Drive	Section of the Gateway Greenway (see above).	No proposed start date.		TBD			



6. IMPLEMENTATION AND COORDINATION									
	Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Plan Implementation		Jamaica Bay Water Quality and Ecological Restoration Steering Committee	Under Harbor Estuary Program organizational structure.	TBD	NA	NA	N	Multi-agency	Focusing on Jamaica Bay for this initiative will conflict with HEP's mission to address harbor-wide issues and constrain their ability to fund the committee.
		BMP Implementation through Mayor's Office Interagency BMP Task Force	Mayor's BMP Task Force to coordinate BMP implementation strategies.	Ongoing	Ongoing	NA	NA	Multi-agency	Mayor's Office's Sustainable Stormwater Management Plan will include information and findings from BMP Task Force. Per Local Law 5, the public review draft to be completed October 2008.
		Education Steering Committee	Continue committee's efforts to implement education and outreach strategies.	Ongoing	Ongoing	\$75,000 No figure previously provided.	Partial	DEP, NYCSWCD	Committee continues to meet to discuss the Jamaica Bay Education Resource Directory; the next meeting is scheduled for Fall 2008.
		Monitor and Review Changes to the Watershed	Track new development, BMP implementation, and overall growth in the watershed in coordination with other agencies.	Ongoing	Ongoing	TBD	N	DEP/OEC/ NYS DEC	Status report pending.
7. STRATEGIES FOR FUTURE CONSIDERATION									
	Potential Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Water Quality	1a5	Proceed with a pilot program	Develop pilot study to address issues and challenges associated with compact, decentralized wastewater technologies.	No details provided		No details provided			
	1c5	Review existing and alternative procedures	Review alternative procedures used by other municipalities to correct compromised sanitary sewers and implement a sanitary sewer connection program.	No details provided		No details provided			
	1c6	Determine effectiveness of existing enforcement and outreach programs	Assess current DSNY campaigns promoting proper disposal of pet waste.						
	1c6	Coordinate ad campaigns/public service announcements to convey connection between water quality and pet waste accumulation	Expand upon current messages and public outreach.	No details provided		No details provided			
	1d2	Utilize coarse bubble diffuser aeration to deliver air to the water column in Grassy Bay	Investigate appropriate on shore location for facilities, distribution network to deliver air to water column, potential multi-jurisdictional issues.	No details provided		No details provided			
	1e1	Continue existing booming, skimming, and netting programs and tracking mechanisms	Continue with existing five facilities, including evaluation and reporting programs.	No details provided		No details provided			
	1e1	Implement Jamaica Bay Study area-specific cleanliness ratings reviews	Add section, Community Board Cleanliness Ratings reviews specific to Jamaica Bay watershed, to CSQ Annual BMP Report to ensure this issue is addressed annually.	No details provided		No details provided			
	1e2	Support DSNY illegal dumping enforcement programs	Clear and timely enforcement of illegal dumping regulations.	No details provided		No details provided			
	1e2	Investigate opportunities to dedicate penalty fines to watershed protection projects (such as the Jamaica Bay Damages Account) and increase public service announcements concerning the environmental dangers of illegal dumping	Governor Spitzer increased revenue to the Environmental Protection Fund, which provides money for water quality and pollution prevention among other DEC programs.	No details provided		No details provided			
	1e2	Increase advertising of the illegal dumping programs	Two programs already exist: The Illegal Dumping Award Program and The Illegal Dumping Tip Program.	No details provided		No details provided			
	1f1	Map industrial and commercial businesses containing automotive and/or transportation facilities	Determine appropriate types of BMPs, since they are site-specific; evaluate potential benefits of implementing additional BMPs.	No details provided		No details provided			

	Potential Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Water Quality	1f2	Review performance and enforcement data of potential sources of contamination within a quarter mile of the Bay and its tributaries	Help identify sources and types of industries that pose highest risks for impairment.	No details provided		No details provided			
	1f3	Coordinate with and facilitate existing brownfields programs	Pursue funding opportunities, such as Brownfield Opportunity Area program.	No details provided		No details provided			
	1g1	Identify existing data gaps and validate currently used or proposed models of contaminated sediments in Jamaica Bay	Review Hudson River Foundation/ Hydroqual modeling report and other references for additional information for sediment toxicity component of conceptual site model.	No details provided		No details provided			
	1g1	Develop a plan for collection and analysis of additional sediment data, including current bathymetry	Evaluation of sediment requires more extensive sampling and analysis than that of current conditions.	No details provided		No details provided			
	1g2	Obtain physical data of sediment to support sediment management options, in order to mitigate toxic sediment mounds in Jamaica Bay	Use Weight of Evidence approach to identify areas requiring further evaluation; continued work by HEP workgroup on toxics; dredging and recontouring schedules.	No details provided		No details provided			
	1g2	Evaluate sediment management options relative to technological capabilities and management objectives for Jamaica Bay	Sediment Management Work Group identifies important questions; decisions should incorporate current level of technical capabilities and experience.	No details provided		No details provided			
	2b2	Restore freshwater wetlands	Six freshwater wetland projects within Jamaica Bay watershed are currently proposed or have potential for restoration opportunities; coordinate with other restoration efforts.	No details provided		No details provided			
Ecological Restoration									

	Potential Strategy#	Implementation Strategy	Description	Schedule	Revised Schedule	Estimated NYCDEP Cost	Funded?	Agency	Status/Comment
Public Education and Outreach	4a1	Develop new K-12 curricula for Jamaica Bay	A more comprehensive, long-term strategy is needed to raise awareness and stewardship among young people.	No details provided		No details provided			
	4a1	Deliver educational messages about Jamaica Bay and its watershed through informal mechanisms and non-traditional media	Provide resources and programs for educators, such as Estuary Live and GLOBE.	No details provided		No details provided			
	4a1	Provide educational opportunities for teachers and other educators	Utilize GNRA and NPS programs already in place for educators to learn about Jamaica Bay.	No details provided		No details provided			
	4a1	Utilize service learning opportunities at elementary and high school institutions, and community organizations to create an informed citizenry	Integrate community service with instruction and reflection to enrich the learning experience, teach civic responsibility and strengthen communities.	No details provided		No details provided			
	4a2	Promote the economic value of open space, wetlands, "green" development, and low impact development within the watershed	Develop and publicize informational materials for public and private development entities in New York City to encourage sustainable development.	No details provided		No details provided			
	4a2	Develop a series of interpretive exhibits at GNRA facilities and beyond	Review existing exhibits to determine gaps; review other potential locations for interpretive exhibits throughout the watershed.	No details provided		No details provided			
	4a2	Establish a program of events including a "Bay Day" or "Eco-festival" that increases awareness and enjoyment of Jamaica Bay through celebration and learning	Identify outreach and recreational groups to discuss opportunities for coordination, reach out to local musicians/bands.	No details provided		No details provided			
	4a2	Create a targeted campaign for public officials and public agency representatives that include briefings, workshops and boat tours about Bay-related issues and opportunities	Utilize Jamaica Bay Watershed Protection Plan to formalize issues, current efforts, and necessary future actions.	No details provided		No details provided			
	4a2	Develop an expanded grease remediation program	Grease traps, Grease Response Education and Enforcement Program, grease recycling program.	No details provided		No details provided			
	4a2	Heighten public awareness through a "Don't Dump, Drains to Jamaica Bay" message affixed to curb inlets, storm drains, and catch basins	Implement stenciling program.	No details provided		No details provided			
	4a2	Continue support for community, environmental advocacy, and volunteer groups to remove litter and other debris from accessible shoreline sites as well as upland areas	Augment ongoing litter-control programs in NYC in the Jamaica Bay watershed, continued support of litter prevention public education campaigns and cleanliness tracking.	No details provided		No details provided			
	4a2	Promote community gardens and other opportunities for urban plantings	Increase level of communication between city agencies and existing community garden clubs and make additional public resources available.	No details provided		No details provided			
Public Use and Enjoyment	6a1	Ferry services to the Rockaways	NPS-proposed connection between NPS sites along the Rockaways, other local NPS sites, and Manhattan.	Currently in planning and design		No details provided			
	6a1	Idlewild Park/Thurston Basin boat access	Extend waterfront access to Jamaica Bay.	No details provided		No details provided			
	6a1	Brochure development	Ensure that residents are aware of the location of recreational facilities adjacent to Jamaica Bay.	No details provided		No details provided			
	6a1	Mapping	Continue to develop comprehensive mapping and documentation of existing recreational amenities and public access points; combine with other open space mapping efforts including those related to PlaNYC initiatives.	No details provided		No details provided			
	6b2	Develop Jamaica Bay branding strategy and signage	Identify potential funding opportunities and develop a strategy for program implementation.	No details provided		No details provided			