NASSAU COUNTY NITROGEN REDUCTION INITIATIVES

• INVESTIGATION OF FEASIBILITY OF DIVERTING TREATED EFFLUENT FROM BAY PARK PLANT TO THE EFFLUENT DISCHARGE PIPE AT CEDAR CREEK PLANT

• TREATMENT PLANT UPGRADES AT SOUTH SHORE WATER RECLAMATION FACILITY (BAY PARK)
  • SEASONAL BNR AND SIDESTREAM TREATMENT CONSTRUCTION PROJECTS WILL REDUCE NITROGEN IN EFFLUENT BY 50%

• SANITARY SEWER FEASIBILITY STUDY OF HEMPSTEAD HARBOR COMMUNITIES
  • FOCUSED STUDY OF CRESCENT BEACH SUBWATERSHED
SEWERED AND UNSEWERED AREAS OF NASSAU COUNTY
Existing Conditions for the Western Bays
Sewage Treatment Plant Discharges in Reynolds Channel
Nassau eyes aqueduct as solution to Bay Park outfall problem

May 20, 2016 By Jennifer Bamon

The new proposal is estimated to cost far less than the estimated $4 billion that has been struggling to finish a building outfall pipe to send the effluent from the East River out into the ocean. The project was announced recently.

Under the proposal, County Executive Edward Mangano said the county would build a new outfall pipe that runs under the East River, which would then be buried in the sand. The cost of the project is not yet known, but it is estimated to be around $250 million.

The County would then connectому new outfall pipe to the existing sewer line. The outfall pipe would run parallel to the existing sewer line, which runs under the East River.

Cedar Creek's outfall pipe extends 154 miles into the Atlantic Ocean and can handle a maximum flow of 5 billion gallons per day. The Bay Park flow would bring the total at

THIS SYSTEM CONSISTED OF A SERIES OF SURFACE WATER IMPOUNDMENTS, INFILTRATION GALLERIES, PIPES, CONDUITS AND GROUND WATER WELL FIELDS COLLECTIVELY PUMPING AS MUCH AS 60 MGD FROM NASSAU COUNTY INTO THE CITY OF BROOKLYN BETWEEN 1862 AND 1958 THROUGH A 72 INCH STEEL FORCE MAIN BENEATH SUNRISE HIGHWAY
"The pipe is in acceptable condition and can be used for many practical purposes such as water supply, fire water storage, stream flow augmentation, sewer mains or as a sleeve for utility conduits and other general purposes the county may have."
EFFORTS TO IMPROVE WESTERN BAYS

Legend:
- Planning/Design
- Cedar Creek Outfall
- Cedar Creek Outlet Pipe
- Existing Sewer System
- DSC Priority Waterbody
- DSC Priority Waterbody Outfall
- Protected Coastal Habitat
2017 Set Up for Inspection
- East Run Segment 10

Summary of condition

- No change from 1977 in this snapshot
- Likely full of pinholes but excellent ring stiffness (e.g., no change in cross section, excellent pipe-soil interaction still)
- Lining shot as it should be
  - Degree of tuberculation present, readily cleaned by current technology
- Excellent candidate for re-use via relining
  - Three (3) options we will look at varying from spray-on, close-fit reinforced tube, and discrete pipes
- Pipe condition in this section, excellent based on visual criteria alone
Reduction of TN Loading in Reynolds Channel (Wet Weather/ High Flow Events)

- Existing Operations
- 99.4% Capture

Future TN loading under current operations:
4,712,000 lbs/year

Future TN loading under proposed operations:
30,000 lbs/year

99.4% reduction in Nitrogen loading
STP Operational Improvements
Seasonal BNR and Side Stream Treatment

Sidestream treatment reduces effluent nitrogen by 15 percent
$20.6 MILLION

Seasonal BNR reduces nitrogen from 35 mg/l to 20 mg/l during the summer (~4 months)
$18.9 MILLION
SANITARY SEWER FEASIBILITY STUDY OF HEMPSTEAD HARBOR COMMUNITIES

- Goals of study are two-fold:
  - Protect the sole-source aquifer that supplies the County’s drinking water supply and;
  - Protect surface waters to allow for use of existing bathing beaches for recreational use.
SANITARY SEWER FEASIBILITY STUDY OF HEMPSTEAD HARBOR COMMUNITIES

Village of Sea Cliff, Glenwood Landing, Glen Head, Roslyn Harbor and Greenvale:
- 3,345 Acres
- 5,279 Properties Served
- Estimated Peak Flow is 8,074,000 GPD
  - 6,876,000 GPD tributary to the Glen Cove WWTP
  - 30,000 GPD tributary to the Shore Road Pump Station
  - 36,000 GPD tributary to Knott Drive Pump Station
  - 1,198,000 GPD Tributary to Roslyn Village Pump Station, Cedar Creek WPCP
- 564,300 LF (69 miles) of Gravity Sewer ranging in size from 8" to 42" in Dia., 1,827 Manholes
- Twelve (12) Pump Stations and a Total of 74,400 LF of Force Main
- Preliminary Construction Cost Estimate $613,000,000
  - Includes Improvements to Shore Road Pump Station
  - Includes Improvements to Knott Drive Pump Station
  - Includes Improvements to Roslyn Village Pump Station (replacement of the Station Force Main not included)
  - Includes Improvements to the Glen Cove Collection System (New Trunk Sewer)
  - Includes Improvements to the Cedar Creek WPCP Collection System Tributary to Roslyn Village Pump Station (increasing the existing sewer from 8" to 12")
  - Improvements/expansion of Glen Cove WWTP not included
Crescent Beach Community:

- ~295 Acres
- 152 Properties Served
  - Single Family, Multiple Family, Estates, Schools and Vacant Lots
- Estimated peak flow is 566,000 GPD - tributary to Glen Cove WWTP
- 77,000 GPD tributary to Morgan Park and Garvies Point Pump Stations
- 21,080 LF (~4 miles) of 8” Diameter Gravity Sewer, 169 Manholes
- Six (6) Pump Stations, 12,600 LF of Force Main
- Preliminary Construction Cost Estimate $37,500,000
  - Includes Improvements to Morgan Park and Garvies Point Pump Stations
  - Includes Improvements to existing Glen Cove WWTP Collection System: Gravity Sewer (increasing existing 8” diameter sewer to 12” diameter)
FOCUSED STUDY OF CRESCENT BEACH SUBWATERSHED

• Bacterial contamination has forced closure of Crescent Beach since 2009

• Previous investigations have shown bacterial contamination along stream which discharges at Crescent Beach

• Focused sampling of dry & wet weather flows combined with ground water monitoring well samples to determine likely sources of contamination

• Future phase of work would include evaluating alternatives to conventional sewers.

• RESULTS OF FIELD WORK EXPECTED BY END OF JUNE 2017