City of New Rochelle
New York

September 12, 2008

To: ***Charles B. Strome III***
City Manager

From: ***Jeffrey C. Coleman, PE***
Commissioner of Public Works

Subject: ***Storm and Sanitary Sewer Evaluation***

Funding was appropriated by City Council following the April 15th, 2007 storm, for the evaluation of storm drain and sanitary sewers in certain areas of the City. Concurrently the Department previously engaged Leonard Jackson Associates for the evaluation of the Hutchinson River to address frequent flooding. The Department engaged Chas. H. Sells (AKA WSP-Sells) for the evaluation of other several areas of concern. It should be noted that the areas evaluated were not areas that experienced flooding solely during the April 15th storm but those that have experienced reoccurring flooding. It should also be noted that there are additional, more localized drainage improvements that the Department has, and will continue to address as part of the capital improvement program.

The following is a description of the recommended improvements. Attached is a spreadsheet summarizing the costs:

1. Hutchinson River

This study by Leonard Jackson Associates identified several individual improvements to improve capacity along the Hutchinson River and reduce the frequency of flood events.

Hutchinson River Drainage		Construction cost
1.a	Wilmot Road Culvert	$2,700,000
1.b	Hutchinson Boulevard Culvert Replacement	$506,000
1.c	Sprague Road Culvert Replacement	$220,000
1.d	Grand Boulevard Culvert Replacement	$250,000
1.e	Channelization of Stream	$2,300,000
Subtotal		*$5,976,000*

The design cost for the foregoing improvements is estimated at $300,000.

The replacement of the existing culvert under Wilmot Road at the split for Wilmot Road and Old Wilmot Road should be completed prior to any channelization or other improvement to the stream. This will improve conditions upstream from the culvert but will have only a minimal effect on the Grand Boulevard, Hutchinson Boulevard, Sprague Road areas. The replacement of the culverts at these public roads require the cooperation of the abutting municipalities and also should be accomplished prior to, or concurrent with, channelization or stream improvement. Constructing the culvert improvements at Hutchinson Boulevard, Sprague Road and Grand Boulevard without improvements to the carrying capacity of the stream itself, will not result in a marked improvement.

The stream channelization and any interim cleanout of the stream requires the authority to enter onto private property (in New Rochelle, Eastchester and Scarsdale) to conduct work. Since this is currently the responsibility of the abutting property owner, the City (or another level of government) would have to obtain easements to perform the work on private property. Scarsdale and Eastchester (or another level of government) would need to obtain similar easements from property owners on their half of the stream.

2. Pinebrook Boulevard

Chas Sells prepared a drainage analysis of the Sheldrake River along Pinebrook Boulevard. While several improvements were studied it appears that only the replacement of the culvert at Tulip Lane and the replacement of two driveway crossings will offer any meaningful improvement to flow in the area. The elimination of the three barrel culvert with a box culvert will reduce the potential for blockage during storm events. It is estimated that the flood elevation will be reduced by one and a half (1 ½) foot, upstream of Tulip Lane. The reconstruction of the bridges servicing two private driveways will reduce the flood elevation (50-year) by between one (1) and 2.8 feet.

The cost of this replacement project is estimated at $575,000.

3. Mayflower Avenue

The sanitary sewer in Mayflower Avenue (between Clove Road and Hillside Avenue) has a liner that has been deformed since its installation over five years ago by Westchester County. This deformation has reduced the capacity of the pipe and makes it susceptible to frequent sewer stoppages. The result is surcharged sewers and backup of sewage into abutting properties. Design is complete and the estimated construction cost for 243 lf. of 8" ductile iron sewer is $206,000.

4. Storer Avenue

The sanitary sewer along Storer Avenue, between Seventh Street and Harmon Avenue, has a back pitch condition and has experienced damage. This condition has the effect of reducing the capacity of the pipe and makes it susceptible to frequent sewer stoppages. The result is surcharged sewers and backup of sewage into abutting properties. Design is complete and the estimated construction cost for 281 lf. of 12" ductile iron sewer is $196,000.

5. Lispenard Avenue

The sanitary sewer which runs from Lispenard Avenue, across the Stephenson Park, to Stephenson Boulevard, has a sag in the line which makes it susceptible to frequent sewer stoppages. The result is surcharged sewers and backup of sewage into properties along Lispenard. Design is complete and the estimated construction cost for 349 lf. of 12" ductile iron sewer is $177,00

6. Victory Boulevard

During the April 15, 2007 storm (and all storms), the abandoned stormwater detention basin was found to be empty. The Department proposes to restore the gate valve in this structure so it can operate and thereby alleviate flooding conditions along lower Victory Boulevard, Valley Road, Paine Avenue, White Oak, and the Halcyon Park neighborhood. Design is complete and the estimated cost is $25,000.

7. Webster Avenue

The sewer was evaluated between Glenorchy Place and Errol Place and found to have longitudinal cracking and several sagging locations. A 210 lf section of pipe is required to be replaced. Detailed design has not been undertaken for this location. The estimated cost for design is $15,000 with a construction cost of $160,000.

8. Brookside Place and Brookdale Avenue

The Sanitary sewer that runs through this area requires rehabilitation consisting of chemical grouting, pipe lining and point repair. This will result in improved performance of the system in this area, will extend the overall life of this system and reduce the likelihood of sewer backups. Detailed design has not been undertaken for this location. The estimated cost for design is $20,000 with a construction cost of $200,000.

9. Webster, Flandreau, Clove, Brookdale, Webster, Remington

Additional sanitary sewer inspection is recommended by the consultant for areas listed above. The cost for this additional inspection is estimated at $17,000.

10. Inflow and Infiltration Identification

As evidenced by the surcharging and sewer backups experienced during storm events, inflow through direct connections of sump pumps, roof leaders and private drains to the sanitary system as well as infiltration of stormwater from the surrounding soil into public and private sewer lines is impacting the system. While there is a system in place for dealing with public lines, an ongoing system for investigating and correcting private connections needs to be put in place. There will be an ongoing cost for the program, however the initial flow monitoring to provide a baseline condition is estimated to be $140,000.

11. Halcyon Park Drainage Improvements

The system beneath is neighborhood conveys stormwater from as north as Stratton Road to the Long Island Sound at Stephenson Boulevard. When the system is flowing full, the neighborhood is not permitted to drain until after the rain subsides and the level of water in the system lowers. It is proposed that the system be modified to suppress the flow in the system to allow the neighborhood to drain. This will not cure the problem for large storms however it will reduce the frequency and magnitude of flooding that occurs regularly in this neighborhood.

The proposed improvements to the system include the following:

- Additional Basins located throughout Brookside/Brookdale area
- Upstream flow diverted at President Street to Sidney Street to alleviate flooding at Howard Pkwy
- Upstream flow diverted at Brookside Place to existing 36” instead of existing 24” with upgrades to both parallel systems along Belleview Avenue
- Replacement of existing 4’x4’ RC box culvert with a 66” RCP to detain flow before entering the 6’x10’ box culvert”

Detailed design has not been undertaken for this project. The estimated cost for design is $100,000 with a ballpark construction cost estimated at $2,300,000.

Department Recommendations

The Department recommends the projects proceed as follows:

Immediate

- The construction ready projects (3,4,5,and 6) proceed as soon as possible as they are either easily implemented or involve sewer backup, a potential public health issue. - $610,000
- Design work proceed for locations 7, 8, 9, and 11 - $160,000
- Obtain buy-in from neighboring communities regarding Hutchinson River Improvements (location 1)

Short term

- Design improvements for Hutchinson River Projects (location 1) - $300,000
- Construction of drainage improvements in Halcyon Park (location 11) - $2,300,000
- Begin Inflow and Infiltration identification program - $140,000 + ongoing costs
- Reconstruct Webster Avenue sewer (location 7) - $160,000
- Rehab Brookdale and Brookside sewer - $200,000
- Design Improvements Wilmot Road (location 1) -$300,000
- Reconstruct culvert along Wilmot (location 1.a) - $2,700,000
- Work with neighboring communities and residents to advance construction of Hutchinson River improvements (Location 1.b, 1.c, 1.d, 1.e)

Long term

- Tulip Lane and private driveway reconstruction (Location 2) - $610,000
- Construct Hutchinson River Improvements (Location 1.b, 1.c, 1.d, 1.e) - $3,276,000

It should be noted that the foregoing is based around 2008 costs and, in some cases, very preliminary design drawings. The Department recommends allowing 10% for escalation and soft costs to be added to the foregoing to be conservative.

w/attach
CC: Deputy Commissioner/City Engineer
Deputy Commissioner – Operations
Manager of Buildings and Sewers